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A COMPARATIVE STUDY OF THE PERCEIVED STRESS, COPING STRATEGIES AND THE GENERAL HEALTH OF THE MIDDLE MANAGERS AND WORKERS

SIDUDUZO MARSHALL HLABISA

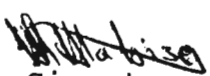
THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN THE FACULTY OF ARTS SCIENCES

DEPARTMENT OF PSYCHOLOGY
UNIVERSITY OF NATAL
DURBAN

DECEMBER 1993

DECLARATION

I hereby wish to declare that the whole thesis, unless specifically indicated to the contrary in the text, is my original work.



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16-03-1994

Date

ACKNOWLEDGEMENTS

I wish to express my gratitude to the following persons:

* Dr H Bennett for her patience and encouragement in guiding me towards the completion of this work.

* Transnet Durban Human Resources Departments in both Portnet and Spoornet business units for allowing me to conduct research on their premises and among their employees. This is specifically directed to the managers of Training and Development of these two business units.

* My mother, Mrs L Hlabisa, brothers and sisters, my wife and our relatives for their moral support and encouragement. Specifically in this respect, I wish to thank my eldest brother, Mr D R B Hlabisa for his "paternal" role in my entire scholastic and academic career.

ABSTRACT

Three questionnaires were administered to 75 workers and 75 middle managers in the Durban-based Portnet business unit of Transnet. The aims of this administration were the following:

* to establish whether there is any relationship between perceived stress and general health within a single occupational group of middle managers and workers separately (horizontal comparisons).

* to find out if there are any differences between the perceived stress, coping strategies and the general health of the middle managers and that of the workers (vertical comparisons).

It was found that the relationship between high levels of perceived stress and the general health is very weak. This was attributed to the effectiveness of the coping strategies used by the members of the two occupational groups in their work environment.

Significant differences between middle managers and workers on perceived stress, coping strategies and the general health were also established. These differences were ascribed to the different content and contextual work dimensions existing in these two occupational levels.

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CHAPTER ONE

1 INTRODUCTION

This chapter includes the following:

(a) The theoretical background of the present study.

(b) The aims of the present study.

(c) The research questions which will be answered through the present study.

(c) The hypotheses which will be tested in the present study.

1.1 The Theoretical Background of Perceived Stress, Coping and Health

The present study involves the measurement of three constructs, namely perceived stress levels, coping skills and general health. A stress theory that embraces these constructs was propounded by Lazarus in 1966. These constructs will be discussed separately:

1.1.1 Stress

Lazarus and Folkman (1984) defined the concept stress as a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being (Hobfol, 1988).

In view of this definition, it seems apparent that Lazarus' theory can be located within

the transactional approach rather than the interactional approach (Laux and Vossel, 1982). The difference between the two is that the former approach focuses on the reciprocal causation while the latter denotes unidirectional causality (Laux and Vossel, 1982). Differently stated, the transactional approach assumes that not only the environment influences the person but also that the latter is an active agent in influencing the environment. It is therefore in the context of mutual rather than unidirectional relationship between the person and his environment that stress is experienced.

1.1.2 Cognitive Appraisal and Coping

Appraisal refers to the evaluative processes that imbues a situational encounter with meaning for the person (Holroyd and Lazarus, 1982). According to Fisher (1986) cognitive appraisal can be divided into three subprocesses. These are: primary, secondary and tertiary appraisals. Primary appraisals are concerned with the interpretation and coding of the problem. Secondary appraisals are concerned with the possible response to perceived. Lastly, tertiary appraisals. Holroyd and Lazarus (1982) defined coping as the efforts of the individual to manage environmental and internal demands and

conflicts among demands. Implied in this definition is that coping has to do with what people are actually thinking and doing during a stressful encounter. Both cognitive appraisal and coping are viewed as determinants of the stress experience.

1.1.3 Holroyd and Lazarus (1982) use the concept health synonymously with adaptation. For the purpose of the present discussion, preference is given to the former concept. The World Health Organization defines the concept health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (Cooper and Smith, 1985). In order to bring the relationship between these three constructs into the picture it might be stated that health is the outcome of effective coping rather than being the consequence of the absence or presence of stress (Holroyd and Lazarus, 1982). In fact, it will be shown in the subsequent chapter that there is nothing like the absence of stress as long as the person is alive. Stress is part of human life. It becomes deliterious only when the environmental demands exceed the individual's resources, otherwise it remains dormant.

Selye (1982) in his General Adaptation Syndrome theory of stress has identified two

types of stress. He has used the term eustress to refer to that type of stress which does not have harmful consequences and distress to refer to that point where the environmental demands exceeds the resources of the individual.

One of the practical implications of Lazarus (1960) theory is that when perceived stress is studied, it must be analyzed in the context of an interdependent person-environment perspective (van Staden, 1984). In accordance with this, the present study focusses on the employees within an industrial organization. It aims to establish the nature of the three constructs, namely perceived stress, coping strategies and general health in two occupational levels, namely middle managers and the workers.

Although some studies on perceived stress and other related constructs have been conducted, none has specifically addressed the problem in the same manner as envisaged in this study. Consequently, some areas of research are likely to be brought to the fore.

1.2 Aims of the Study

The aims of the study are as follows:

1.2.1 To identify the occupational level in the organisation's hierachy where perceived stress is most experienced.

1.2.2 To determine the nature of the relationship between perceived stress, coping skills and the general health of the middle managers and the workers.

1.2.3 To assess the need for stress management programmes in the organisation.

1.2.4 To identify further research areas.

1.3 Research Questions

An attempt will be made in the present study to answer the following questions:

1.3.1 Which of the two occupations levels i.e. of the organisation experience more stress.

1.3.2 What is the nature of the coping skills used by the middle managers and the general workers.

1.3.3 What is the status of general health of middle managers and that of the workers.

1.3.4 What is the nature of the relationship between perceived stress and the coping skills of both middle managers and the workers.

1.3.5 What is the nature of the relationship between stress-coping skills and the general health of the two occupational groups.

1.4 Hypotheses

These will be as follows:

1.4.1

H_o A high level of perceived stress will be associated with a low level of perceived general health.

H_1 A high level of perceived stress will be associated with a high level of perceived general health.

1.4.2

H_o Effective coping skills will be negatively related with perceived general health.

H_1 Effective coping skills will be positively related with perceived general health.

1.4.3

H_O There will be no significant difference between the perceived stress levels of the middle managers and that of the workers.

H_1 There will be a significant difference between the perceived stress levels of the middle managers and that of the workers.

1.4.4

H_O There will be no significant difference between the coping skills of the two occupational groups.

H_1 There will be a significant difference between the coping skills of the two occupational groups.

1.4.5

H_O There will be no significant difference between the general health of the two occupational groups.

H_1 There will be a significant difference between the general health of the two occupational groups.

1.5 Summary

The aim of this chapter was to lay a theoretical foundation for the subsequent chapters. Constructs such as perceived stress, coping skills and the general health will be discussed in depth in the following chapters. It is hoped that the testing of the hypotheses will provide answers to some of the questions raised in this chapter and further lead to the fulfillment of the aims of the present study.

CHAPTER TWO

At the end of this chapter the reader shall have achieved an understanding of the following:

* The theoretical perspectives of perceived stress.
* The effects of the work-environmental stressors (physical, individual and group stressors) on work performance.

2 The Theory of Perceived Stress

It seems appropriate to commence this section by explaining the concept theory before one can relate it to perceived stress. According to Kerlinger (1986) a theory is a set of inter-related constructs (concepts), definitions and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena.

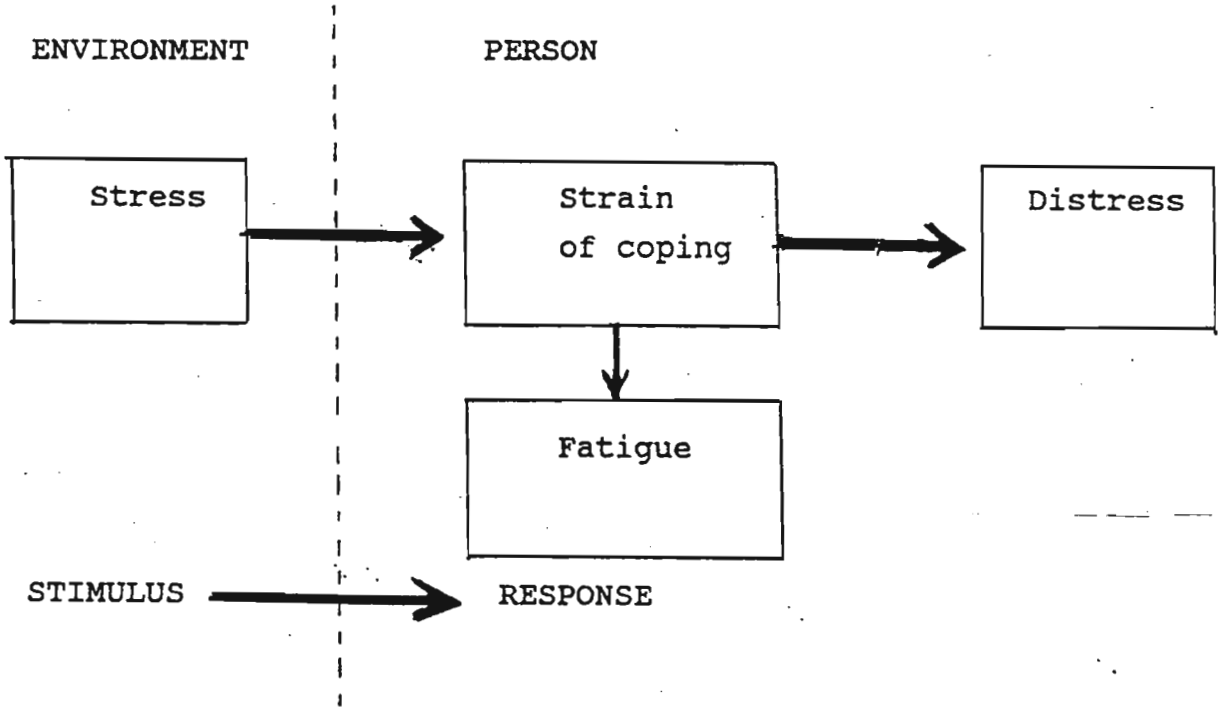
Attempts to achieve the purpose of theoretical formulations in the field of stress (or stressology, Selye, 1982), have been based on three perspectives (Fisher, 1986). These are: the stimulus, response and the stimulus-response perspectives.

2.1 The Stimulus Perspective

In this approach stress is treated as an independent variable or as the stimulus characteristic of the

environment. An independent variable is the presumed cause (Kerlinger, 1986). Examples of such variables are: noise, heat, cold, work and others. Johns (1988) refers to these as the stressors.

The adherents of this perspective would therefore define stress as the force or stimulus acting upon the individual that results in a response to strain where strain is pressure, or in a physical sense deformation (Gibson and Ivancevich, 1982). In the form of a diagram, this approach may be presented as follows:



Layman's (dictionary) Model of Stress (Cox, 1987)

An investigator who adopts this approach as his theoretical background may, for an example hypothesize

that an X decibels of noise will elicit stress responses from an individual who is subjected to it. A study that was conducted by the Swedish trade Union Confederation on its members is a good example of this approach (Levi, 1981). The results of the study showed that high tempo at work was regarded by the union members as the most stressful characteristic of their work environment. Other causes of stress were reported as being smoke, draught, air pollution, noise, wage problems and the physical strenuous work.

The results of this study indicate that the definition of stress from this perspective has serious demerits. One of these has to do with the assumption that what is stressful for one person will also be stressful for another (Fisher, 1986). It is therefore possible for an investigator to hypothesize that a temperature of $70^{o}F$ will cause stress to anyone who is subjected to it. This is an inaccurate prediction because people differ in terms of their resistence to temperature. An appropriate hypothesis would then be that a temperature of $70^{o}F$ will cause stress to most people who are subjected to it.

Proponents of this perspective point out that one can measure the stress to which a person is subjected by the same process we measure that to which a machine is subjected (Cooper, Cooper and Eaker, 1988 and Cox, 1981). Again this is an inconclusive argument. Man's stress cannot be equated with that of a machine for the simple reason that the former is endowed with

human characteristics which can help a person either to avoid the effects of or adapt to the environment. In emphasising this point, Cooper, Cooper and Eaker (1988) state that stress has to be perceived or recognised by man and that a machine does not have to recognise the load or stress placed upon it. An elaborate discussion on the behavioural aspect in the causation of stress will be made on the third perspective, namely stimulus - response perspective. In the meantime the focus of discussion is being shifted to the second perspective.

2.2 The Response Perspective

Contrary to the stimulus definition of stress, the proponents of this perspective treat the response aspect as a dependent variable (Fisher, 1986) or the presumed effect (Kerlinger, 1986). A prominent adherent of this view was Selye (1950) who made the first scientific attempt to explain the phenomena of stress (Cooper, Cooper and Eaker, 1988 and Cox, 1981 and Kisker, 1972).

Selye (1950) defined stress as the non-specific physical response of the body to any demand made upon it (in Cox, 1981). According to Selye, the stress process is made up of the following stages (Cooper et al ibid).

(a) Alarm Reaction

This stage is characterised by a lowered resistance. This is followed by a

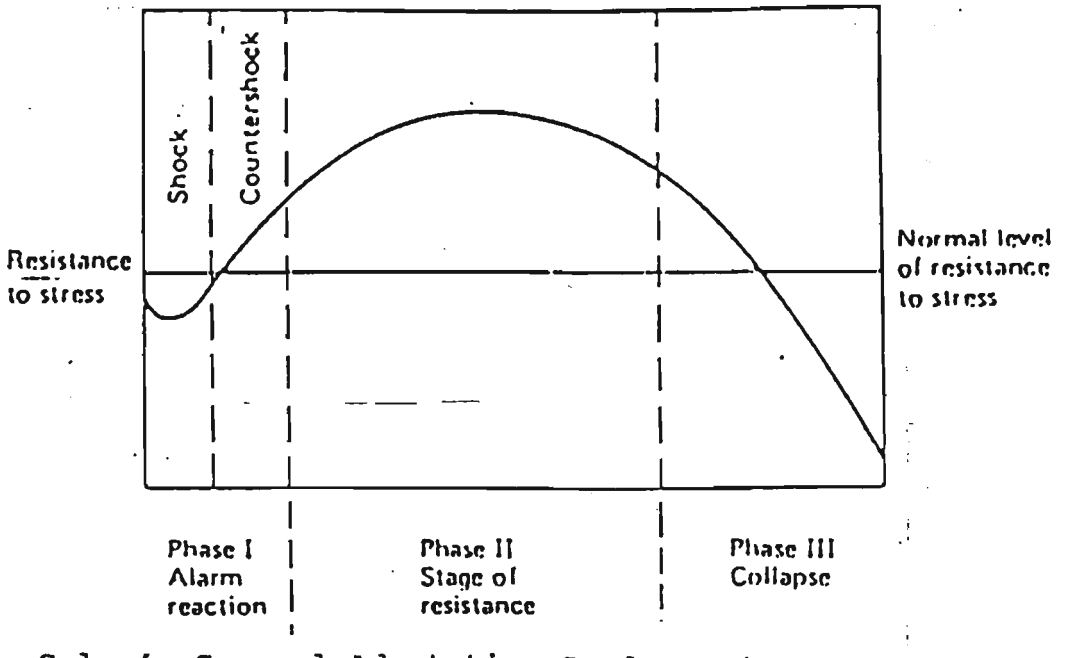
countershock which activates the individual's defence mechanisms.

(b) Resistance

This is the stage of maximum adaptation. There is a possibility that the individual might successfully retain his equilibrium. If this is not successful, he will proceed to the third stage.

(c) Exhaustion

This is the final stage which indicates that the individual's defence mechanisms have failed. In the form of a diagram these stages may be presented as follows:



Selye's General Adaptation Syndrome (Cox, 1978)

Apart from proposing the stress process, Selye also distinguishes between positive and negative

stress (Strümpfer, 1983, 1987). Positive stress has a motivating force and is called eustress. Negative stress has debilitating effects and is called distress (Everly and Rosenfed, 1983; Goldberger and Breznits, 1982).

Even though Selye (in Kisker, 1972) was the first person to make a scientific explanation of the phenomena of stress, criticisms have specifically been directed to his work and the response perspective in general.

It is argued, for instance, that Selye's definition ignores both the psychological impact of stress upon the individual, and the individual's ability to recognise stress and act in various ways to change his situation (Cooper, Cooper and Eaker, 1988).

Another demerit of this perspective is that one is unable to predict the nature of the stress response or even whether there will be a stress response (Gibson and Ivancevich, 1982). Further Fisher (1986) states that it is difficult to distinguish and define responses that are part of the stress response from those that are not. He substantiates his argument by making an example that a person may sweat for reasons other than being under stress. In terms of the response perspective, such a person would wrongly be diagnosed as being under stress.

Finally, another difficulty arises from the fact that a number of dependent variables change in stress and that one variable (the controlling variable) may change to protect a second variable (the controlled variable). Therefore different impressions may be given of whether or not stress is occurring.

These few criticisms are indicative of a need to develop a comprehensive theoretical system that will embrace all if not most of the germane factors in the causation of stress.

In view of this an attempt is made in the subsequent system to satisfy this need.

2.3 The Stimulus - Response Perspective

The third perspective recognises the roles played by both the stimulus (environmental variables) and the response patterns (individual) in the aetiology of stress. Accordingly, it has been referred to as the stimulus - response perspective (Gibson and Ivansevich, 1982) or interaction approach (Cox, 1981). Perceived stress is thus defined by Stokolos (in Savason and Spielberger, 1979) as a state of imbalance within an organism that is elicited by an actual or perceived disparity between environmental demands and the organism's capacity to cope with these demands and manifested through a variety of physiological,

emotional and behavioural responses. This response syndrome occurs as a result of the organism's exposure to excessive environmental demands.

Several theories have been formulated within this perspective, The Demand - Capacity theory by McGrath (Fisher, 1986) and the Man - Environment theory by Cox and Mackay (Cox, 1981) are few examples of these. Like Selye's general adaptation syndrome (GAS), these theories describe the stress process in stages.

McGrath (in Fisher, 1986) for instance proposed the following stages in his Demand - Capacity theory:

(a) There is a demand which is imposed by the environment on the organism.
(b) There is also a perception. This is a recognition or appraisal by the organism which creates a subjective demand.
(c) Further, there is the organism's response. These can be physiological or behavioural.
(d) Lastly, there are consequences of the response.

According to McGrath's theoretical formulations therefore, the environment imposes demands on the individual. At this stage there may be nothing wrong. The problem will emerge when the environmental demand exceeds individual capacities. This is when stress is experienced.

In essence therefore, perceived stress is not considered as a function of the environmental stimuli

and that of the individual separately. On the contrary, perceived stress is the outcome of the interaction between the individual and his environment.

If the three theoretical approaches to the study of perceived stress are compared, the following points are revealed:

(a) The focal point of the stimulus-response perspective is broader than that of the other two approaches. It includes both man and his environment instead of attributing perceived stress to these two variables separately.

(b) The stimulus-response perspective is psychologically based and explicitly deals with the individual's perceptual factors (Fisher, 1986). The transactional role played by these factors in the aetiology of perceived stress is ignored by the stimulus and the response perspectives.

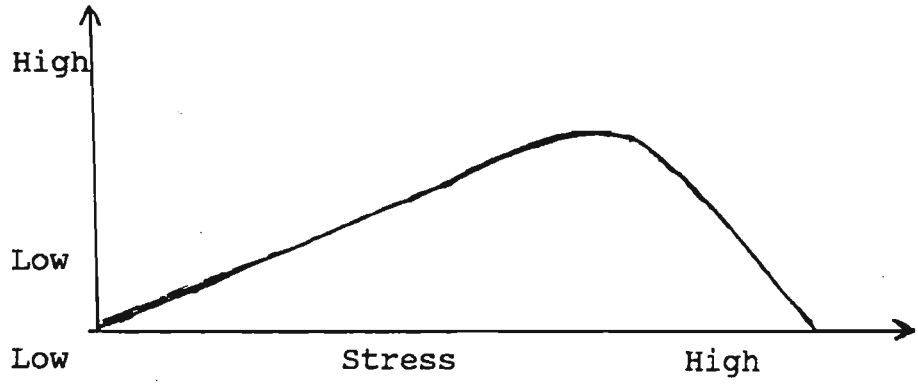
(c) Another advantage of the stimulus-response perspective is that it provides clear guidelines for the study as well as the alleviation of perceived stress (Fisher, 1986).

2.4 THE EFFECTS OF THE WORK-ENVIRONMENTAL STRESSORS ON HUMAN BEHAVIOUR

2.4.1 Physical Stressors and Performance

Physical work stressors can be classified into three groups (Landy and Trumbo, 1980). They are: the task-induced stressors, situational and psychological stressors and those that disturb the physiological equilibrium of the body.

Regardless of category membership, prolonged and immense exposure to any stressor decreases each person's work performance. In the form of a diagram this can be presented as follows:



Relationship Between Stress and Performance (Robbins, 1989)

The above diagram shows the progression of both stress and performance from low to higher levels. At the beginning, low or moderate

levels of perceived stress have motivating effects on performance. This is what Selye referred to as eustress (Cooper, Cooper and Eaker, 1988; Strümpfer, 1983).

As exposure to a stressful environmental stimuli progresses beyond moderate levels, the effects of stress change from positive to negative. Individual' energy becomes depleted and work performance output decreases. Selye referred to this negative stress as distress (Everly, ibid).

Some researchers have investigated the relationship between some physical stressors and some dimensions of human behaviour. There are many physical stressors in the work environment. It will be enough therefore to consider studies which have been conducted on four of these. They are: noise, heat, shift work and repetitive work.

(a) Noise and Academic Performance

Weinstein (1978) correlated noise with academic performance (McCormick and Ilgen, 1980). College students were divided into two groups, namely those who were sensitive to noise and those who were insensitive to noise. Their

academic progress and satisfaction/ dissatisfaction were monitored. The results showed that the sensitive group was significantly more dissatisfied with dormitory living than the insensitive group and their academic performance deteriorated as a result of noise. Further the dissatisfaction of the sensitive group increased as the year progressed.

These results confirm the positive relationship between stressors and human behaviour. That is, prolonged and immense exposure to physical stressors increases the levels of perceived stress. When these have progressed beyond what Everly (1981) calls optimal level, they then become destructive.

An apparent question however is: why did the same physical stressor namely, noise elicit different responses from the students? The answer to this question is that mediating factors such as human needs and values determine to some extent how and when will an individual react to the stressor (Blunt, 1983).

(b) Heat and Performance

Wilkinson and his associates (1964) correlated the different levels of heat with performance (in Landy and Trumbo, 1980). They hypothesized

that different levels of body temperature will adversely affect the performance of cognitive tasks. These included a vigilence task requiring the subjects to detect some occasional weak tones and an arithmetic task in which the subjects were required to perform simple calculations.

The subjects were placed in a hot room. This exposure was maintained until their body temperatures reached one of the three levels, namely 99.1^{o}F, 100.2^{o}F and 101.3^{o}F. The desired temperature was then maintained throughout the session by means of a special heat suit. The performance of the cognitive tasks was then measured. The results were that the time taken to respond to the vigilence task signals increased at 99.1^{o}F but decreased at the two higher body temperatures (100.2^{o}F and 101.3^{o}F). The increase of the time factor in performing a particular task is a reflection of poor performance. On the contrary, a decrease of the time factor in relation to task performance would have been indicative of efficiency. This would have implied that the increase of body temperature (stressor) had positive effects on the subjects. Another implication would have been that the subjects had high resistence to a stressful environment. These implications, however, are mere conjecture. The results of the experiment

showed that the increase in body temperature had an inhibitory effect on task performance.

The relationship between body temperature and the performance of arithmetical tasks followed the same pattern. That is, there was an inverse relationship between these two variables. Initially, there was an increase in the performance of arithmetical tasks. This was followed by a decrease in the latter variable as the former was increased. The relationship between the detection of signals (vigilence task) and the increase of body temperature was a prominent exception. The increase of the latter variable was accompanied by an increase of the subject's ability to detect signals.

These results imply that body temperature may either impair or enhance the performance of cognitive tasks. This, however, depends upon two factors, namely:

The level to which the body temperature is raised. There is a level beyond which the body may not be able to tolerate increased temperature. This will then inevitably affect the performance of any cognitive task negatively. Another relevant point is that a cognitive task might be easy enough to be performed at higher body temperatures.

This experiment has one serious shortcoming. That is, it ignores the role played by the characteristics of the stimuli. This contradicts the transactional approach of the present study wherein the characteristics of both the individual and the environment are viewed as having a mutual role in the causation of perceived stress. In spite of this, however, it must be accepted that factors like age, sex, size of the body would have accounted for individual differences in responding to temperature variations one way or the other.

Ultimately the subjects' performance of cognitive tasks would have been adversely affected as their body temperatures were increased. This would have confirmed the hypothesis that the increase and prolonged exposure to stressors adversely affect human behaviour.

(c) Shift work and Performance

Investigations in this regard have focused on the workers attitudes towards shift work and its effects on human behaviour. Wedderburn (1978) included 315 shift workers from the British Steel Industries in his sample. The workers were required to express their attitudes toward shift work by answering the following question (McCormick and Ilgen, 1981 and Landy and Trumbo, 1980).

"On the whole, how do you feel about working shifts?"

The responses were as follows:

TABLE 1

Response	Percent
1 I like it very much	18
2 I like it more than dislike it	29
3 I neither like nor dislike it	22
4 I dislike it more than I like it	23
5 I like it very much	8

Workers Attitudes toward Shiftwork (McCormick and Ilgen 1980; Landy and Trumbo, 1980)

These results show that the majority (47%) of workers had positive attitudes toward shift work compared to 31% who disliked it. The problem with these results, however, is that

the term 'shift work' is not well defined. For instance, it does not explain whether it refers to day shift (07:00 to 15:00), night shift (22:00 to 06:00) or a swing shift (14:00 to 22:00).

The workers might have meant to respond positively or negatively to any of these shift variations. Further, the positive or negative responses might have been due to different reasons. For instance, in a survey by More and Walker (1968), attitudes towards these shift variations were considered. The results were as follows:

TABLE 2

	Preference	Percent
1	Permanent day work	61
2	Rotating shift work	12
3	Permanent night work	27

These results indicate that most workers preferred day shift to both rotating and permanent shifts. Further, sleeping problems and distorted social relations were cited by the workers as the sources of dissatisfaction. The effect of shift work on performance was

that errors tended to increase while output deteriorated. This observation was more apparent on the night shift. In view of these findings, Wedderburn's study (1987) is not sufficiently conclusive.

Matt, Mann, McLoughlin and Warwick (1965) investigated the effects of shift work on workers (Landy and Trumbo, 1980). The sample consisted of blue-collar workers. The questionnaires and interviews were used as instruments. The following results were obtained:

(a) The subjects (night and rotating shift workers) complained about constant fatigue, poor appetite, constipation and a variety of other disorders.

(b) The normal day shift worker seemed to be advantagious to the individual worker.

(c) The steady afternoon shift adversely affected workers both outside and inside the family. For instance, the father was often asleep when children were preparing for school and the children asleep when he came back from work.

The implication of these studies is that shift work has debilitating consequences to the workers. Within the work environment, it

disrupts work performance. Outside the workplace, it disorganises the social relations of the individual worker.

(d) Repetitive Work and Performance

Repetitive work refers to that type of work in which a discreet set of task activities are repeated over and over again without planned interruptions by other activities or tasks (Cooper and Smith, 1985). It has the following characteristics:

(i) Demands : This involves the repetition of simple tasks and frequently meaningless motor acts. These acts are often associated with theunderutilization of skill potential. This results in habituation, less ability to attend and drowsiness.

(ii) Constraints and Lack of Control: These constraints may and lack of be physical or task- control related. They may include high noise level, high attentional demands, physical lay-out, high levels of (machine) pacing in a relatively isolated work situation. Lack of control over the task include work aspects such as little responsibility and autonomy, low participation in the planning of company activities.

(iii) Social Support: Work demands and constraints often result in reduced social contact at work, unhelpful work groups and lack of acceptance by the group, and poor relationship with the supervisor.

The following aspects must be considered in relation to these dimensions of repetitive work:

(a) The nature of repetitive work will vary from company to company.

(b) The experience of perceived stress is an individual phenomenon.

These two aspects imply that different dimensions of repetitive work in different companies will have different perceived stress levels in different workers. Two among the many organisations which have studied repetitive work as being stressful are; the National Institute of Industrial Psychology (NIIP) and the National Institute of Occupational Safety and Health (NIOSH) (Cooper and Smith, ibid).

(i) <u>The NIIP Study</u>

The subjects of the sample in this study were 160 women who were performing repetitive work in various British companies. Interviewing was

used as a method of collecting information. The study showed that the underutilization of skill was the main complaint in most of the interviews. The interviewers also disliked pacing either by machine or conveyor belt and lastly dissatisfaction was noticeable where the constraints were perceived to be unnecessary.

(ii) The NIOSH Study

The sample of this study were several thousand male workers. Questionnaires were used as a method of collecting the information. It was found that:

(a) Workers engaged in assembly line tasks (including those with repetitive dimensions) reported higher levels of perceived stress than those in other occupational groups.

These two studies indicate that repetitive work has similar consequences as other physical stressors on both the workers and the organisation. The psychological, physiological and behavioural well-being of the workers deteriorates. Consequently, the organisation experiences decreased productivity.

It is therefore to the interest of both the worker and the organisation to either

modify or eliminate physical stressors in the workplace.

2.4.2 Individual Stressors

Individual stressors relate to the tasks to be performed by the individual (Strümpfer, 1986). They include work overload and underload, role conflict and role ambiguity.

(a) Work Overload

There are two types of work overload. These are quantitative and qualitative overload. Quantitative overload refers to too much work to be performed by the individual worker. On the other hand qualitative overload refers to the performance of complex task (Katz and Khan, 1978; and Cooper and Payne, 1978). Both types of overload are hypothesized as potential source of stress. This, however, has little or no empirical evidence (Cooper and Payne, 1978).

For instance Russek and Zohman (1958), (in Cooper and Payne, 1978), conducted a study involving 100 young coronary patients. They found that 25% of the subjects had been working at two jobs and that 45% had worked at jobs which required (as a result of overload) 60 or more hours per week.

These two investigators pointed further that although prolonged emotional strain preceded

the attack in 91% of the cases, similar stress was only observed in 20% of the control group. This evidence confirmed the hypothesis that quantitative work overload contributes extensively towards the experience of stress. In turn this can ultimately cause coronary heart disease (CHD). Further evidence of quantitative overload with its concomittant CHD possibilities has been observed among South African managers. In this regard, Zimbler, Solomon, Yom Tov and Gruzd (1985) state that research in this country has revealed the following:

(i) South African managers experience significantly higher levels of perceived stress than the Dutch and American managers.

(ii) South African managers work 25% hours more than Australian managers and 15% hours more than their North American and Western European colleagues.

(iii) South African managers have a wider span of control (1:33) than their Western European colleagues.

Strümpfer (1985) attributes this over-utilization of White managers to skilled manpower shortage in South Africa. The South

African government in this respect takes the lion's share of responsibility for its discriminatory educational and industrial laws and practices. Although there has been an increase of financial expenditure on African education, there is still a vast per capita disparity with regard to that allocated to the education of other race groups (Finnemore and Van der Merwe, 1986).

The Table below clearly shows this point as follows:

TABLE 3

Estimated Per Capita Expenditure on Education 1982/83			
		Including Capital Capital Expenditure	Excluding Capital Expenditure
1	White	1385,00	1211,00
2	Coloured	871,87	711,16
3	Indian	593,37	497,59
4	African	192,34	146,44

Source : Survey of Race Relations in South Africa, 1983, Johannesburg, South African Institute of Race Relations,1984, p420.

The spiral effect of this inequitable spending on education is lack of sufficient Blacks with managerial and executive skills which in turn contributes towards the over-utilization of White managers. The table below illustrates this point as follows:

TABLE 4

THE OCCUPATIONAL DISTRIBUTION OF DIFFERENT RACIAL GROUPS

		Percentage of Race Groups			
Occupational Category		African	Asian	Coloured	White
1	Professional & Technical	23.0	3,5	10.0	63.5
2	Managerial & Executive	2.0	2.0	1.0	95.5
3	Clerical	14.7	7.5	8.3	69.4
4	Sales	24.4	8.8	10.6	56.0
5	Production Workers	69.8	4.0	12.1	14.0
6	Unskilled	85.1	1.2	12.5	0.5

The Occupational Distribution of Different Racial Groups : Cassim 1982 in Webster, 1985

The Table above shows that there was only 2% of Africans in the executive and managerial positions in contrast with 95,5% Whites in 1982 who occupied these positions (Statistical Services, 1982). A breakdown of employers into statutory and privately owned companies, however, shows that there has been an improvement over the past nine years. Whether this improvement is significant or not is a question which requires some statistical calculations.

For instance, in both executive and managerial levels, there were 11% Africans compared with 83% Whites in the government sector in 1991. In the private sector, there were 9% Africans and 73 Whites in these two occupational levels during the same period (Statistical Services, 1991). This unequal racial distribution into these occupational levels can be attributed to different reasons, many of which can be located within race discrimination. A few of these can be mentioned as being unequal education for the different race groups and job reservation.

Job reservation has been abolished in South Africa but some White managers still resent the encroachment of Africans into managerial and executive positions. This can be traced as far back as 1922. For instance, Rigby, Radford and Bennet (1961), perceive the 1922 Rand Strike as having been a direct result of White employees' reaction to the encroachment on their skills by unskilled workers of other race groups.

Further, Ehler's research in 1984 showed that White artisans and technicians in the Pretoria and Britz areas had a very negative attitude towards vertical mobility of Black workers.

The application of some psychological tests which are based on the Western culture, for selection in a multiracial pool of applicants can be cited as an example of one of the practices aimed at frustrating the Africans' upward occupational mobility. In this connection, Taylor (1987) states that the use of biased psychometric tests for shortlisting from a multiracial pool will not result in fair selection. Implied in this is that those racial group members whose cultural background is the same as that of the test or selection instrument will obtain higher scores than those who do not belong into the testing culture. Whether the test was being conducted for promotion or employment, the applicant of a testing culture have better chances of being selected. This has been referred to as adverse impact (Moerdyk, 1987).

Instead of these practices, progressive companies could have adopted policies such as Equal Employment opportunities and designed Affirmative Action Programmes. In this manner poorly educated Africans with managerial potential would have been identified and subjected to managerial training in accordance with succession planning. An attempt which bears some resemblance to this notion has been made by Charoux (1985). He has formulated a system aimed at the

identification of Africans with managerial potential. Endeavours such as these could have been made a long time ago had it not been for industrial psychologists' neglect of labour (Fullagar, 1984) and some employers' willingness to adhere to the principle of job reservation.

It is for this reason that the author of the present discussion firmly believes that a smaller but significant share of responsibility for the over-utilization of White managers should be put on the employer organisations as well. They did not do enough to address the inadequacies caused by the Africans' inferior education system. Some of the employer organizations (in South Africa) had to be forced through the imposition of measures such as the Sullivan Code by their American based mother companies to improve their employment practices.

In view of this, it can be concluded that, whilst Strümpfer's assertion regarding the over-utilization of White managers has an element of truth, conversely it can be accepted as being true as well that Africans are frustrated as a result of bottlenecks being created by White managers in the former's vertical occupational mobility. Both sides of the coin are therefore stressful for both racial groups.

(b) Work Underload

Beech, Burns, and Sheffield, (1982) consider jobs which involve dehumanizing monotony, lack

of opportunity to use acquired skills and expertise, absence of any intellectual involvement and repetitive performance as providing instances of underload. Job dissatisfaction has generally been considered as a symptom of jobs characterized by these instances.

Harrison (1975) (in Cooper and Payne, 1978) found that the relationship between job dissatisfaction (a symptom of stress) and work underload (stressor) varies from one occupation to another. In his study work underload seemed to have had little effect on the job dissatisfaction of assembly line workers and policemen. Work underload, however, caused job dissatisfaction for administrators and tended to increase the same symptom of stress among the scientists. The obvious question is; what are the factors to which this variation of job dissatisfaction across occupation can be attributed. In answering this question Harrison (1975) speculated that professionals such as scientists and administrators want a high level of intrinsic satisfaction in their jobs. work underload can reduce the availability of intrinsic satisfaction and thus increase overall job dissatisfaction.

Another aspect of work underload that was investigated by Myers and his colleagues (1968)

is lack of intellectual involvement in the performance of work. The sample of this study consisted of military personnel who were placed in sensory isolation for 96 hours. This group was compared to another group which experienced no confinement.

Both groups were subjected to tests of mental ability before, during and after confinement. The constructs which were measured by these tests were immediate memory, numerical ability, verbal fluency, successive subtraction and inductive reasoning. The scores of the confined group on the latter two tests were significantly lower than those of the control group.

These two studies show that work underload is a potential stressor. Reactions to it are usually in the form of hysteria, nausea, headache, general malaise and visual dysfunction, absenteeism and a high turnover (Beach, Burns, and Sheffield, 1982). These reactions entail great financial losses to industrial organizations. This underlies the significance of providing work-place facilities for the alleviation of stress.

(c) Role Conflict

Role conflict can be defined as the simultaneous occurrence of two or more sets of

pressures such that compliance with one would make it more difficult or render impossible compliance with the other (Katz amd Kahn, 1978).

Apart from propounding this definition, these authors have identified the following types of role conflict:

(i) Conflict may arise from the instruction to carry out a particular action when the person knows that such an action is at variance with a previous instruction.
(ii) Conflict may also result from the incompatibility of information from different members of an organization.
(iii) Conflict can arise because personal values and needs are violated by certain job requirements.
(iv) Conflict can also occur between different roles which may be within or outside the person's job.

John, French, and Caplan, (1972) (in Adams 1980) conducted a national survey involving male wage earners and salaried employees. They found that 48% of the subjects found themselves between two sets of people who demanded different kinds of behaviour on the job. They further found that there was a significant relationship between role conflict and coronary

heart disease (CHD) among white collar workers. Another significant relationship revealed by the study was between role conflict and ponderosity.

Regarding the incidence of CHD, Issacson (1974) as cited by Strümpfer (1983) observed that there was a marked increase of this ailment among the South African urban Blacks. Unfortunately, however, Issacson did not speculate about the probable cause of this increase on CHD. This obviously indicates a need for more and comprehensive research on this and other issues associated with stress among South African Blacks.

(d) Role Ambiguity

Role ambiguity is commonly defined as a state in which a person has inadequate information for the successful performance of his job (John, French, and Caplan, 1980 and Snelgar, 1990). The basic phrase in this definition is inadequate information. Such information may inter alia include the incumbent's rights, obligations and privileges, area of freedom and the consequences of input on the job for himself, his colleagues and the employer organization.

In the context of stress, one might hypothesize that the inadequacy of information on these and

other related job dimensions is strongly associated with perceived stress or its symptoms. Studies of this nature have been conducted and have confirmed this hypothesis.

For instance in a study of 53 persons, John (1957) et al ibid (in Adams 1980) found that men who experienced role ambiguity in their jobs reported low job satisfaction. The same finding was replicated in the Goddard Space Flight Centre study by the same investigators.

In addition, however, they found that the more ambiguity the person reported, the lower was his utilization of his intellectual skills and knowledge and administrative and leadership skills. In a study conducted in South Africa, Snelgar (1990) found that there was a moderate (0,44) correlation between stress and role ambiguity and that there was a low correlation (0.35) between role conflict and role ambiguity. He also found that there was a low correlation (0,27) between role conflict and stress.

He interpreted these findings as indicating that role conflict is amenable to problem-solving behaviour or coping. As a result, incumbents experienced lesser stress. Role ambiguity on the other hand may be less amenable to problem-solving and the incumbents

can therefore do very little to alleviate stress. That is why the relationship between role ambiguity and perceived stress was found to be comparatively higher than the relationship between perceived stress and role conflict.

In summary, it can be stated that role ambiguity results in psychological strain and dissatisfaction, under-utilization of human resources and the feelings of futility on how to cope with the organizational environment.

2.4.3 Group Stressors

(a) Superior-Subordinate Relationship

The relationship between a leader and his subordinate can be a source of stress. This can be seen among other things as a function of the superior's leadership style. A study that was conducted by Cooper and Melhuish (1989) substantiate this hypothesis. In this study, 34% of the 500 male executives interviewed, perceived their relationship with their superiors as being the main source of stress (Nykodym and George, 1989).

The following represents some leadership styles which may result in high levels of stress. This, however, is dependent upon the subordinate's coping capacities because individuals differ in their capacity to

tolerate stress. These styles were enumerated by Blake and Mouton (1964) when they introduced the concept of initiating structure into their leadership theory (Cogill in Barling, Fullager and Bluen, 1986).

1.1 Impoverished Style

This type of leader has low concern for people combined with very low concern for production. It is a style that is tantamount to abdication.

9.1 Task Style

This style is characterized by a low concern for people combined with an extreme concern for production or task accomplishment. The basic strategy for this type of leader is to decide what must be done, making sure that people understand what must be done and then to ascertain that they do what must be done even if this entails sacrifice on their part.

1.9 Country Club

This appears to be a contradiction of the task style of leadership. It is characterized by the extreme concern for people combined with a very low concern for production. A great deal of effort is expended on the development of pleasant working conditions and on promoting an atmosphere of friendliness, informality and avoidance of pressure.

5.5 Middle of the Road Style

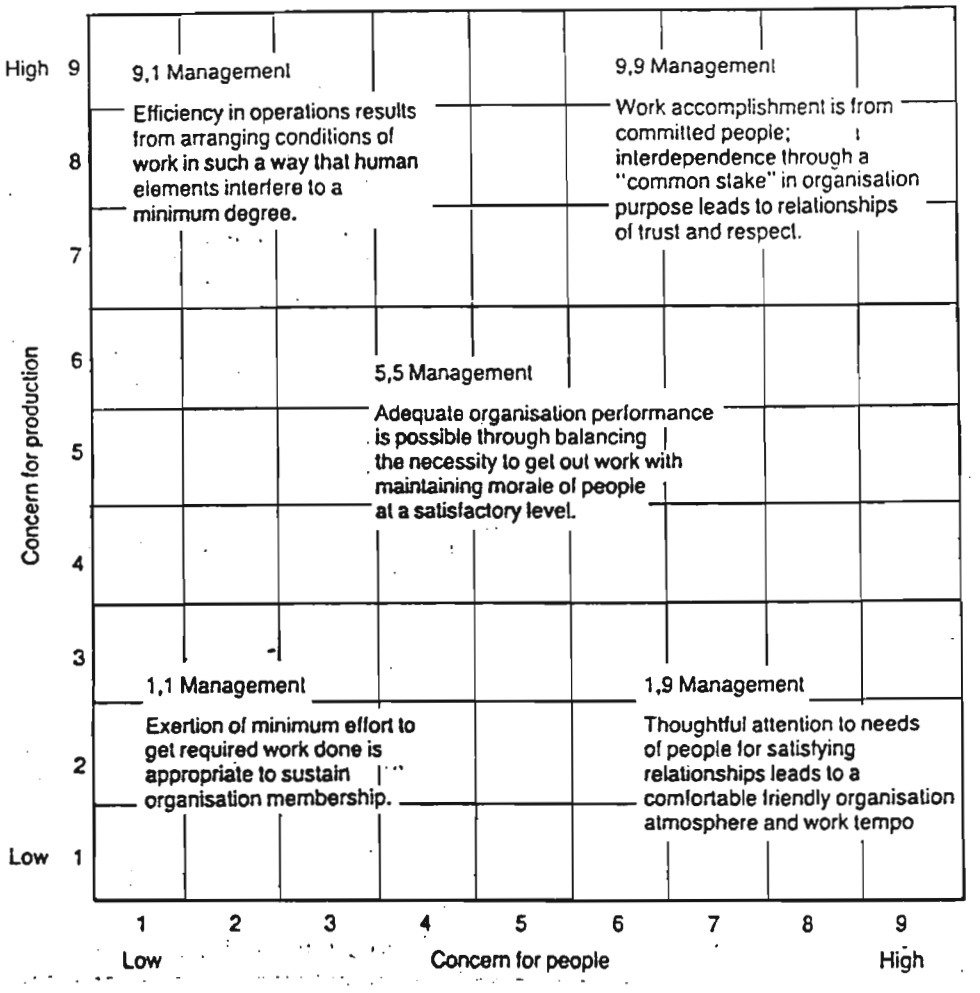
This is characterised by a moderate concern for both production and people. The basic strategy is to balance these two dimensions, namely production and people. Compromise is reached when conflicting demands are met.

9.9 Team Style

This is similar to the middle of the road style in terms of equal concern for both people and production. The difference, however, is that concern for the two dimensions is higher than that of the 5.5 leadership style.
The basic strategy is to involve people and give them a "stake" in the achievements of the organization. It is also part of the strategy in this style to generate commitment by utilising the subordinate's abilities to get the best possible results. Joint problem-solving is basic in this style.

These two proponents suggested the following grid to show where these styles can be located:

Figure 16.2: The Managerial Grid



The Managerial Grid (Cogil, C. in Barling, Fullagar and Bluen, 1986)

Superficially, the identification of the most stressful leadership style seems to be an easy task. At this level one can simply identify the task style of leadership (9.1) as the most

likely to be a source of perceived stress on the subordinates. This would be based on the premise that this type of leader is likely to push his subordinates hard regardless of their needs and feelings. Concisely, he would treat them like machines in order to achieve production targets.

A comprehensive consideration of these styles, however, will show that any of the above mentioned styles is likely to be a source of perceived stress. The individual subordinate is the primary determinant as to which of these styles is stressful. Perceived stress is indeed an individual phenomenon (Cox, 1978).

Some people for instance, work well under pressure (a dimension of task leadership style) but others dislike this so immensely that they may resign from their jobs (psychophysiological withdrawal). Those who work well under pressure will experience eustress while those who dislike this are likely to suffer from distress. Thus, a single stressor may result in dissimilar experiences in two different individuals.

2.5 Summary

This chapter focused on three theoretical perspectives which have been used by investigators to explain the

phenomenon of perceived stress. It would appear that the most recently and generally accepted definition is that perceived stress develops from a transaction of the person and his environment. Whether perceived stress becomes deliterious or not depends on two processes, namely perception and coping.

Having outlined the theoretical context of perceived stress as being between the individual and his environment, chapter two also embraced an analysis of the latter. This included a classsification of work environmental stressors into three categories namely, physical, individual and group stressor. There may be more categories and even more stressors within each of these both in and out of the work environment. For instance, besides the work place or environment, Schafer (1987) includes the family, the school and the community as being the social contexts of perceived stress.

A comprehensive discussion of all these was therefore beyond the scope of this chapter. It is hoped, however, that the few stressors which were discussed, do serve the purpose of elucidating their harmful effects on human work performance.

An orientation into the following chapter requires that the following questions be raised:

* What are the consequences of perceived stress to the individual and his employer organisation?

* Is there anything at all the employer organization can to to alleviate the effects of perceived stress?

CHAPTER THREE

3 THE CONSEQUENCES OF PERCEIVED STRESS

This chapter focusses on the following:

1 The consequences of perceived stress to the individual. This includes the behavioural, psychological and physiological consequences.

2 The consequences of perceived stress to the employer organisation.

3.1 Individual or Behavioural Consequences

In the context of perceived stress within an industrial organization, individual or behavioural consequences would embrace productivity, absence, turnover, eating habits, increased smoking, excessive consumption of alcohol, fidgeting and sleep disorders (Cooper, Cooper and Eaker, 1988). Among these the most important is job performance. Refer to Chapter Two for the diagrammatical presentation of the relationship between perceived stress and performance. The explanation of the inverted U diagram above is that individual's job performance is stimulated when the level of perceived stress is low or moderate. Beyond the moderate level however, job performance begins to decline. One can therefore hypothesize that the increase of perceived stress results in the decline of job performance.

3.2 Psychological Consequences

This refers to changes in an individual's attitude and disposition due to perceived stress (Robbins, 1989). This attitudinal change may range from being positive, neutral and to negative. Negative attitudes have often been assumed to reflect job dissatisfaction (Strümpfer, 1985).

The assumption about the positive attitudes on the other hand is that they indicate job satisfaction. Job dissatisfaction is the most general indicator of distress in the work situation whereas job satisfaction is the best single predictor of eustress (Strümpfer, 1985).

In his study of 2 800 executives, Strümpfer (1985) found that German and Swedish subjects reported greater job satisfaction than their South African counterparts. This implies that the South African executives work in an environment characterized by higher levels of perceived stress.

Strümpfer (1986) attributed this to the over-utilization of white managers and the under-utilization of black human resources. He explain that, in 1980, 59,7 percent of the professional, technical and 91,7 percent of the administrative and management workers were whites who constituted less than 18 percent of the total population.

These statistics show that white collar jobs were generally occupied by whites. Some of the reasons for

this are poor education for the blacks, job reservation and the tendency by whites to keep lucrative jobs to themselves. The most important implication from Strümpfer's comparative observation is that South African industrial executives are subjected to work-overload (stressor) which affects their attitudes negatively. Other psychological states which may result from high levels of perceived stress include tension, anxiety, irritability, boredom and procrastination (Robbins, 1989).

3.3 Physiological Consequences

These include changes in metabolism, increased heart and breathing rates and increased blood pressure. Investigators have frequently identified coronary heart disease (CHD) as being associated with high levels of perceived stress (Robbins, 1989). Roskies (1987) defines CHD as the inadequate supply of oxygen to the heart. He distinguishes between two forms of CHD. These are, angina pectoris (severe chest pain) and the myocardial infraction. The major cause of CHD is the narrowing of coronary arteries through the gradual accumulation of plaque along the walls.

This is a gradual process which may occur over a period of 20 to 40 years and many other factors contribute to it. Cooper Cooper and Eaker (1988) estimate that almost half of all Americans die of cardiovascular disease which include heart attack and stroke.

They also point out that the resulting economic cost, including medical services and lost productivity reached an estimated $78,6 billion in 1986. Zimbler, Solomon, Yom Tov and Gruzd (1985) point out that the rate of deaths from coronary heart disease has declined by 20% in the United States. This is attributable to lifestyle changes in the United States such as increased exercise, altered diet and reduced smoking.

Contrary to this trend, Zimbler et al (ibid) assert that the rate in South Africa has increased, especially among the younger age groups. They estimate that coronary heart disease costs the South African economy more than R750 million a year. The table below shows the South African coronary heart disease mortality rates for white working males versus other countries:

1 Mortality rate per 100 000
2 Ratio of South African rate/rate of other country (Zimbler, Solomon, Yom Tov and Gruzd, 1985).

In the twenty five year to thirty four year age bracket, white South African working males, as can be seen from the table above, show a mortality rate more than two times as great as the United States. Statistics for the blacks were not available, but Zimbler et al ibid and Strümpfer (1986) point out that there seems to be an increase of stress-related diseases among urban blacks.

3.4 Organization Consequences

The consequences of perceived stress to an organization are often reflected through low productivity. This may inter alia include job dissatisfaction, alienation with co-workers, reduced commitment to company goals and loyalty, and absenteeism (Gibson and Ivancevich, 1982).

Absenteeism is one of the most obvious costs of perceived stress to employers (Cooper, Cooper and Eaker, 1988). It may be described as an individual's psychological and physical withdrawal from the work environment that is perceived to be unhealthy. An unhealthy work environment is one that is characterized by negative work dimensions such as

unsatisfactory pay, negative superior-subordinates relationship and others.

There are two hypotheses that can be formulated if the description of absenteeism is regarded as premises. For instance, it may be hypothesized that there is a perfect positive relationship between job dissatisfaction and high levels of perceived stress. Another hypothesis may be that there is positive relationship between these two factors and absenteeism.

Studies which have been conducted to confirm these two hypotheses have produced mixed results. Brayfield and Crocket (1955), Herzberg (1957) and Vroom (1956) reviewed satisfaction-withdrawal hypothesis (Landy and Trumbo, 1980). They concluded that the two variables were substantially related, that is, unhappy workers were more likely to stay away from the job or leave the company. This can be regarded as the confirmation of the hypothesis.

In their study Shepherd and Walker (1957) focussed on the relationship between the physical working conditions (potential stressors) and absenteeism. Working conditions investigated included heavy work, temperature, dust, fumes. These investigators reached the following conclusions:

3.4.1 Physical arduous work was associated with high rates of absenteeism. This was more pronounced for short-term absenteeism than for long term.

3.4.2 Men in occupations which involved both continuous and heavy work had higher absence rates than workers on other jobs.

3.4.3 Exposure to heat was associated with a decrease rather than an increase in absence rates. These investigators explain that the reasons for these were unknown.

Other findings, however, did not confirm the dis-satisfaction, distress-withdrawal hypothesis. In their study of 200 workers from 16 different organizations, Nicholson, Brown and Chadwick (1976) concluded that there was no relationship between job satisfaction and the rates of absenteeism (Landy). Further, the conclusion reached by Shepherd and his colleague (1957) substantiate the insignificance of the correlation coefficients between some stressors such as heat and absenteeism.

An apparent question that one can raise in this connection is: why are the research findings mixed? On the surface the hypotheses seem acceptable and logical. The problem emerges when they are tested. A probable explanation might be that there are methodological problems which contaminate the results.

For instance, Nicholson and his colleagues reviewed 29 studies in this connection (Landy and Trumbo, 1980). They

concluded that the results which supported the positive relationship between these variables were either due to flawed experimental design or inappropriate analysis.

Regardless of the research findings, the fundamental issue is that absenteeism is an expensive aspect for an organization. Cooper, Cooper and Eaker (1988) estimated that the cost of absenteeism may be equal to about five times an employee's monthly salary. In South Africa, Zimbler et al (ibid) estimated that absenteeism cost over R300 million a year.

The consequences of perceived stress to the employer organization are many and they differ. Absenteeism was chosen for the purposes of discussion as an example to indicate what an employer organization is likely to experience as a result of the work-environment that is conducive to stress.

3.5 Summary

To summarize, this chapter focussed on the consequences of perceived stress. Man-environment context, as in chapter one, was used to explain the deleterious effects of perceived stress to both the individual and an employer organization. There are many more consequences involved than were discussed in this chapter. A comprehensive discussion of all these would have transcended the scope of this chapter. It is hoped therefore that the few which were discussed do suffice to explain what happens to the individual and his employer as a result of prolonged exposure to perceived stress.

CHAPTER FOUR

4 COPING

This chapter includes the following:

1 The definition of the concept coping.
2 The role of the situation in determining the efficacy of coping.
3 The dispositional determinants of coping acts.
4 Stress management by the individual (primary level), the employer organization (secondary level) and by the government/industry (tertiary level).

4.1 The Definition of Coping

In the first chapter, perceived stress was discussed within the context of man and his environment. Vachon (1987) used the same context to define coping as being "the cognitive and behavioural efforts made to master, tolerate and reduce external or internal demands and conflicts among them".

This definition focuses explicitly on efforts to manage perceived stress, that is, the constellation of thoughts and acts that constitute the process of coping. Everly (1989) refers to these coping acts as strategies. He distinguishes between two types of coping strategies. These are: the adaptive and the maladaptive strategies. Adaptive coping strategies reduce perceived stress while at the same time promoting long-term health. Examples of such strategies include calisthenics, relaxation and proper

nutrition. Maladaptive coping strategies on the other hand do indeed reduce perceived stress in the short-term but serve to erode health in the long-term. Alcohol and drug abuse, cigarette smoking, interpersonal withdrawal and others are good examples of maladaptive strategies.

4.1.1 Coping Strategies and Health

Holroyd and Lazarus (1982) have enumerated four mechanisms or general pathways through which coping affects health. However, before one can elaborate on these, it seems essential to state that these authors view health as being the product of effective coping rather than being a consequence of the presence or absence of perceived stress.

This view is consistent with that of the World Health Organization which defines the concept health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (Cooper and Smith, 1985). According to Holroyd and Lazarus (1982), this three-dimensional state of well-being is affected by coping through the following mechanisms:

Firstly, a distinction between problem-focussed and emotion-focussed coping strategies must be made. The former strategy is aimed at the problem that elicits perceived stress. For instance, a person may change the meaning or

value of a situation to minimize its negative effects on his well-being. A person who has failed examinations for example, might simply state that this is not the end of the world for him or I am not the only one to have failed the examinations".

Emotion-focussed strategy is difficult to distinguish from other defence mechanisms such as denial (Fisher, 1986). In this strategy a person tries to suppress thoughts that elicit emotional pain by keeping himself busy. Fisher (ibid) provides examples of emotion-focussed strategy as being the use of tranquilizers and alcohol when all else has failed.

A second mechanism that influences health occurs when illness behaviour (such as reporting symptoms or seeking treatment) or actual physiological symptoms serve as a coping strategy. For example, a person who is a victim of work-overload (see Chapter Two), may, instead of going to work, consult a company doctor for non-existing physical ailment like backache. Even though this may be a temporary coping strategy, it might nevertheless provide him with a much-needed break from pressure at work. Management perspective of such practices, however, is that these constitute an abuse of sick leave.

The third pathway results in negative effects on the well-being of a person because it involves

the modification of adaptive behaviour patterns into maladaptive ones. The result is that the person becomes exposed to injurious agents like smoking, alcohol, allergens and others.

Lastly, a particular coping strategy adopted by an individual to acute or chronic illness can influence both its prognosis and treatment. A suitable example in this regard is that of the asthmatic who responds to the intermittent threat of airway obstruction with high levels of fear or panic. Such a person will require a prescription of more steroid medication than the patient who is less fearful and more persistent in his efforts to cope with the threat (Holroyd et al, ibid).

4.2 The Role of the Situation in Determining the Efficacy of Coping

Coping has been defined by Vachon (1987) as the cognitive and behavioural efforts to manage external or internal demands. The implication of this definition is, among other things, that the environment in which the individual exists, is the context or external demands or stressors. This further implies that the environment or situation has a role to play in determining the selection of a coping strategy.

There are two aspects that can be enumerated in this connection. These are as follows (Krahne, 1986):

(a) The characteristic controllability of a situation.

(b) The segmentation of a stress-inducing situation into the following phases:

  (i) Anticipatory phase (with elements such as an announcement of a certain event and execution of preparatory acts).

  (ii) Confrontation phase.

  (iii) Post confrontation phase (with elements of feedback).

There are two concepts which are central in the characteristic controllability of a situation (Krohne, ibid). These are: behavioural control (controllability) and information control (predictability). On the basis of these two, it might be hypothesized that a given coping strategy may have differential effectiveness in reducing perceived stress depending on the control patterns of the situation encountered.

For instance, the coping strategy of monitoring (that is, attempts to gain information about a stressful event and to exert influence on it), is especially unfavourable when such a situation does not permit behavioural control. A good example in this regard would be that of a person who is anticipating surgical operation.

Under such circumstances, a person usually tries to gain information about the stressor without being able to use it for controlling the event. As attempts to

control the stressor fail, the stress load may even be augmented by a monitoring strategy. On the other hand, monitoring may be a useful strategy if the information garnered leads to an increase of controllability of a stressor such as preparing for the examinations.

The efficacy of a given coping strategy does not only depend on the controllability aspect but also on the phases of a stress event. These phases are preparation, confrontation and post-confrontation (Krohne, ibid; Cooper and Smith, 1985). Taking the achievement situation like examinations again, these phases can be clearly demonstrated.

In this situation there is an initial heightened arousal level during the preparation phase. This preparatory phase may very well be adaptive with regard to optimal handling of a stressor. In this case, arousal serves as a motive for testing out different coping strategies. This, in turn, results in a more "modulated" handling of internal as well as external sources of perceived stress.

By contrast, the immediate attacking of emotional arousal may result in an inefficient adaptation to the stressor. Subsequent to this, there may be a breakdown of the system of organized coping acts when entering into the real confrontation phase.

In another study by Johnson (1975) as cited by Cooper and Smith (ibid), the preparatory hypothesis was

successfully confirmed when a significant difference (Dunnett's t=2,44;p<,025) was observed between a group of chidren who had received preparatory information before surgery and the control group which did not receive this type of information. Further, the latter group had the highest distress mean compared to the experimental groups.

The highest mean scores and the significant difference between the mean scores of the two groups (that is, the sensation condition group and the control group) can be attributed to the presence of one variable (information on cast removal and the absence of the same in the other group (control group).

These results confirmed the hypothesis that preparation before the actual experience of the stressful event results in the alleviation of the emotional after-effects.

4.3 The Dispositional Determinants of Coping Act

A discussion of coping behaviour that focuses exclusively on situational factors is too narrow and inadequate. Apart from this, it would also be a substantiation of the stimulus theoretical approach in the study of perceived stress (see Chapter Two). This has already been described as being inadequate because it ignores the role played by human or internal factors in the production of perceived stress. Further, such a discussion will not be in accordance with the man-environmental theoretical framework adopted for the present study.

A comprehensive discussion should therefore be the one that takes into cognizance the interplay of both the situational and the dispositional factors in determining the efficacy of coping behaviour. Firstly however, it seems appropriate to define the concept dispositional coping.

According to Cohen (1987), coping dispositions refer to tendencies of an individual to use a particular type of coping across a variety of stressful encounters. Krohne (1986) implicitly concurs with this definition because he uses the term 'coping mode' to refer to the tendency of persons to preferably realize a certain pattern of coping strategies when confronted with a stressor.

In this context, it might be postulated that individuals have greater or lesser ability to realize the type of coping behaviour most favourable in a situation. The existence of such individual differences has been demonstrated by Avril and his colleagues (1977) (in Krohne, 1986).

In this experiment subjects could avoid electric shock if they chose to listen for a warning signal and subsequently performed a control response. The effectiveness of this response varied across trials 100%, 66%, 33% or 0%. The subjects were exposed to each level and were informed about the respective effectiveness probability in advance.

In terms of their different responses to a similar situation (electric shock) the subjects could be classified into three categories. According to Krohne (1986), there was a group of "sensitizers" who had employed a rigid vigilant response and there was a group of "oppressors" who had used a rigid but non-vigilant coping strategy. The last group consisted of members who could be expected to achieve the highest efficacy of coping across different situations. This is because their coping behaviour was related to the situation which coinfronted them.

Chesney and Rosenman (1983) state that recent studies examining the cognitive coping strategies among Type A and Type B subjects indicate that the former type subjects may differ in their styles of coping with situations they perceive as challenging. However, before one can elaborate on their coping styles, it is essential to enumerate the characteristics that would be instrumental in the distinction between these two personality types.

Friedman and Roseman (1974) who pioneered the type A/B typology define Type A behaviour pattern as an action-emotion complex that can be a person who is aggressively in a chronic, incessant struggle to achieve more and more in less and less time (Cooper and Robertson, 1987). The behavioural patterns of people who have this personality type include intense competitiveness, a sense of being under pressure, easily provoked hostility and susceptibility to coronary heart disease (CHD).

On the other hand, individuals who are relaxed, speak slowly, make few intense gestures, move slowly and calmly, display no muscular tension or impatience, deny even moderate levels of drive or ambition, avoid deadlines, dislike competition and feel no sense of urgency, are likely to be classified as having a Type B behaviour pattern (Blunt, 1983).

Davidson and Cooper (1981) undertook an intensive review of the relationship between Type A behaviour patterns and the work environment (Cooper and Robertson, ibid). They reached six conclusions. The most germane of these in the context of this discussion was that Type A maladaptive coping behaviours include enhanced feelings of time urgency and a tendency to suppress symptoms and fatigue. They thus impose deadlines on themselves, increase goals and deny physical as well as psychological symptoms under pressure.

In their investigation, Howard, Rechnitzer and Cunningham (1975) noted that workers classified as Type A tended to use coping behaviour which were the least effective strategies for reducing stress symptoms (Cooper and Smith, 1985). In yet another study by Houston and Pitter (1980), it was found that Type A subjects employed greater suppression and denial than Type B (Cooper, 1983). It can be deduced from these research findings that Type A people are poor copers compared to Type B people.

Besides Type A and B typology, Suzane Kobasa and her associates (1979) propounded the Hardy Personality Theory to explain the relationship between perceived stress and health (Strümpfer, 1983). The assumption of the theory is that among persons facing significant stressors, those high in hardiness will be significantly less likely to fall ill either mentally or physically than those who lack hardiness or who display alienation, powerlessness and threat in the face of change (Cook and Epstein, 1987).

The proponents of this theory further suggest that hardy personality comprises three dimensions, namely control, commitment and challenge (Cooper and Robertson, ibid). Control has to do with the feeling and belief that life events may be influenced rather than that one is helpless when confronted with adversity. Commitment reflects a generalized sense of purpose and meaningfulness that is expressed as a tendency to become actively involved in events rather than remaining passively uninvolved. Thirdly, challenge suggests that life events are perceived not as an onerous burden one is weighed down by, but instead, as a normal part of life that provides an opportunity for development.

These three characteristics are interrelated. They represent an overall style of stress resistance. Strümpfer (1983) states that several studies on executives, military officers and other layers have conformed hardiness as an insulation against perceived stress. The aspect of hardiness differs from person

to person. Those with higher degrees of hardiness will be less vulnerable to perceived stress due to environmental changes than those who have lower degrees of hardiness.

To conclude the discussion on the situational and dispositional determinants, one might venture an assertion that coping is not a disposition or trait which is stable over time and across different types of situations. Instead, coping seems to be a continuous, transactional process which is modified by experience within and between episodes. Moreover, any coping strategy such as information-seeking or monitoring (Krohne, 1986) can alleviate perceived stress in one situation, yet be remarkably maladaptive in another (Cooper and Smith, 1985).

4.4 Stress Management

The foregoing discussion implicitly indicates that excessive degrees of perceived stress can be harmful to both the individual and his employer organization. It follows therefore that stress management strategies should be directed at these two contexts. However, a holistic perspective requires that a third context be included. This third context is called community. The inclusion of the community is based on the premise that the individual functions on both the micro and macro contexts. Likewise stress-management strategies can only be effective if they focus on the areas frequented by the individual. These areas include the individual himself as a life-time carrier of perceived stress, his employer organization and the society at

large. Coleman (1976) has utilized primary, secondary and tertiary concepts as a framework to discuss the prevention of mental disorders. The same approach will be used in this section to discuss stress management strategies with special reference to the three areas.

4.4.1 Primary Stress Management Strategies

Primary stress management strategies constitute what the individual himself should do to prevent the conversion of eustress into distress. According to Greenwood and Greenwood (1979) the essence of a successful stress management strategy is the adequate understanding that perceived stress has both the positive (eustress) and the negative (distress) features.

After the acquisition of knowledge regarding the nature and the symptoms of perceived stress, the subsequent step should be the compilation of a self-inventory. This consists of the information collected from physical and psychological examinations. The individual should subject himself to medical examinations so that he can identify his or her weaknesses and strengths. This examination should also provide information on the appropriate corrective measures to be taken by the individual in response to the identified physical infirmity.

According to Greenwood and Greenwood (1979), the collection of psychological data may be

difficult. This can be obtained from a psychotherapist (psychiatric physician or psychoanalyst). The difficulty in obtaining this kind of information is that it may be expensive, time-consuming and even at times uncertain as to the results. As an alternative to this Greenwood et al (ibid) suggests group therapy in the form of transactional analysis.

Transactional analysis is often practised in a group context (Coleman, 1972). The therapist analyzes the interactions or transactions among the participants and helps them understand the ego states in which they are communicating with each other. It can be any of the three ego states, namely the child ego state (archaeopsychic), the adult ego state (neopsychical) and the parent ego state (exteropsychic). The group may thus be formed by a family or workers under one supervisor.

In this context each participant receives feedback from the therapist regarding inappropriate (maladaptive) patterns of communication. As has been stated in the previous sections, interpersonal relations may be a source of stress (Brodzinski, Scherer and Goyer, 1989). Transactional analysis may therefore contribute towards the eradication of maladaptive patterns of communication and a development and maintenance of adaptive behaviour patterns between and among the

workforce. The feedback which is obtainable from this group therapy session can then be included in the person's self-inventory.

Besides the collection of information from the therapist regarding maladaptive communication patterns, the individual must also garner information about the work environmental stimuli. This involves the identification and the formulation of a list of environmental stressors to which one is exposed at work. In this regard, Greenwood et al (ibid) states that it is important to distinguish between stressors which produce phylogenetic reactions (environmental stressors over which one has minimum control) and those stressors which produce reaction that are acquired or learned in one's sociocultural development. The latter group constitutes those stressors over which an individual can develop and exercise some degree of control. (See Appendix A and B).

The final step in the compilation of a self-inventory is the determination of the individual's own optimum stress-level. Greenwood et al (ibid) describes this as being the level at which the individual derives the greatest stimulation to creativity or productivity without the undue adverse effects. (See Chapter Two on the relationship between health and optimal stress levels).

The compilation of this self-inventory should enable an individual to formulate his policies or philosophy and plans about the modification of maladaptive behaviour into adaptive patterns. This will constitute his strategy for the management of perceived stress.

4.4.2 Secondary Stress Management

Secondary stress management at this level has to do with what the employer organization can do to minimize the effects of perceived stress or to facilitate the recuperation of those workers who may already be the victims of perceived stress. Since employer organizations differ in many respects, stress management strategies which they can design and adopt for the benefit of their workforce may likewise be different. A discussion of the various types of strategies in different work contexts is beyond the scope of this section. The few that will be discussed represent some examples of some of the things that can be done at secondary level to manage perceived stress. They include the following:

(a) Policy Formulation

A fundamental step indicative of the employer organization's commitment to stress management is the formulation and adoption of a stress management policy. This should include inter alia the recognition of perceived stress as an illness. In this respect, workers who suffer

from stress will be entitled to sick leave benefits. However, it must be acknowledged that policy formulation on stress management can be a formidable task likely to confront management.

This complexity emanates from the lack of unanimity on the definition of the concept perceived stress. In London for instance, the National Institute of Industrial Psychology joined a group of industrial doctors and scientists with the aim of collecting hard evidence to show that perceived stress is an illness. Buzzard (1973), states that after 18 months of collecting facts, the group failed to provide a definition of perceived stress.

This state of affairs, however, should not be used as a pretext by management to avoid the responsibility of facilitating and promoting health care in the work environment. To this end therefore, a generally acceptable definition of the concept can be found. This entails some literature review by human resources practitioners. The goals of the employer organization can be used as a frame of reference in choosing the definition. Once the organization has formulated its policy and has defined what this policy is all about, the subsequent step should be the discussion of its practical implications with the workers or their union. Contrary to this, management

might be running the risk of implementing a stress management programme that may not be utilized if not rejected by the workers who are intended to be the beneficiaries.

(b) The Employee Assistance Programme

Walsh (1986) defines Employee Assistance Programme (EAP) as a programme embodying a set of company policies and procedures for identifying and responding to self-identified employees and assisting them with personal or emotional problems that may interfere directly or indirectly with job performance criteria.

The following represents the various forms of EAP from which an employer organization can choose.

(i) Internal Employee Assistance Programme

In this strategy EAP functions are found within the company. There is an EAP department staffed by professionals such as social workers, industrial and clinical psychologists, and personnel development officers.

(ii) External Employee Assistance Programme

The external strategy involves the utilization of outside resources such as the out-patient clinics, including the support systems located in the community

(Bews and Bews, 1988). The troubled employee is first identified by the supervisor who refers him to the industrial nurse or industrial medical practitioner who functions within the human resources department who will in turn refer the troubled employee to outside sources of help such as out-patient clinic administered by the South African National Council on Alcoholism and Drug Dependence in Durban, or the rehabilitation centres such as the Madadeni Rehabilitation Centre in Newcastle.

(iii) <u>The Consortium Approach</u>

The consortium approach as suggested by Beugger (1968) can be regarded as another version of the external EAP. In this approach, different companies come together to create EAP structures where these do not exist.

To conclude, the role of the employer organization, on perceived stress management, it might be stated that these programmes can be designed, discussed and implemented under the ambit of social responsibility. This can be divided into internal and external social responsibility programmes. In the external aspect of the social responsibility, however,

it seems as if employer organizations, in a country like South Africa, should do more than just creating EAP structures where these do not exist. In this regard, Perlman (1987) states that employers must look not only at the social problems of the workers, but at the root causes of those problems. If they are based on injustice or even statutory discrimination, employers must be seen to openly support the abolition or amendment of the injustice. This involvement is inevitable because "unfavourable township conditions which include poverty, unemployment, poor community facilities (i.e. education, housing, recreation, medical and transport), violence, security force presence and breakdown of community life impact on organizational processes and work behaviour" (Bluen and Odesnik, 1988).

4.4.3 Tertiary Stress Management

Tertiary level focuses on the availability and accessibility of health care facilities provided by the government (Greenwood, ibid., Levi, 1984 and ASTMA). In order to fulfill this responsibility, the government must pass legislation aimed at the regulation of these facilities. For the purposes of the present discussion, this type of legislation will be classified into two categories. The first category has to do with that type of legislation

which focuses on the employer-employee relationship. Examples of such legislation in South Africa are as follows (Owen and Adendorf, unpublished).:

(a) Labour Relations Act No 25 of 1956.

(b) The Basic Conditions of Employment Act.

(c) The Machinery and Occupational Safety Act.

(d) The Manpower Training Act.

(e) The Guidance and Placement Act.

(f) The Woman's Compensation Act.

(g) The Unemployment Insurance Act No 30 of 1966.

The perusal of this legislation shows that perceived stress is not explicitly recognized as a danger to health. South Africa is not alone in this respect. The United Kingdom also does not have legislation that is directed at the preventative and curative measures of occupational stress (ASTHMA). In these countries, health and safety are considered in terms of the machinery, hazards and toxic chemicals.

The need for legislation which recognizes that perceived stress is a disease should be

propounded by the unions for negotiations with the employer organizations and the state. The Norwegian or Swedish legislation on occupational stress can be studied by any of these parties with a view to discuss, and adapt it to suit local conditions (ASTMA). Although somewhat remote from this, certain developments in this country within labour legislation are indicative of a direction that might ultimately lead to the recognition of perceived stress as a disease.

One of these developments has to do with a committee appointed by the Manpower Department to perform the following functions (The Daily News, November 20, 1992):

(a) To examine occupational health and safety.

(b) To recommend guidelines for the training of occupational health and safety professionals.

This might lead to the amendment of the Machinery and Occupational Safety Act.

The second category of legislation transcends employer-employee relationships into the entire South African society. In this regard the focus is on the availability and accessibility of health care facilities such as soccer fields, clinics and hospitals, rehabilitation centres, schools, swimming pools, housing and others.

The underlying dimension in both availability and accessibility of health care facilities is equity. It is concerned with the creation of equal opportunities for health and with bridging health differentials down to the lowest possible level (Whitehead, 1992).

Inequity on the other hand is the opposite of equity. It refers to differences which are unnecessary and avoidable, but in addition are considered unfair and unjust. The relevance of these two contradictory concepts in the present discussion is that the second definition describes the status quo in the distribution, availability and accessibility of health care facilities in South Africa. The first definition of equity describes a desirable state of affairs. The South African social structure is characterized by statutory race classification commonly known as apartheid (Dawes, 1985). The following are some laws which have been regarded as the backbone of apartheid:

(a) Group Areas Act
    This act provided for the creation or allocation of certain geographical areas to specific racial groups.

(b) The Separate Amenities Act
    The act provided for the creation and maintenance of separate social structures and services for each race group.

(c) The Population Registration Act
This act ascertained that every member of a particular race group is born, registered, classified and will die as a member of that particular group with its residential areas in accordance with the Group Areas Act and its own social amenities such as soccer fields, schools, houses, clinics, hospitals and others all created and maintained in terms of the Separate Amenities Act.

Out of the four predominant race groups (whites, Indians, Coloureds and blacks), blacks in particular have been and still are directly affected by this stress-generating policy of apartheid (Dawes, ibid). Differently stated, health care facilities created and maintained for the blacks in terms of the above laws have often been of a poor quality and quantity. For instance, the budget allocation for the rehabilitation services for alcoholics and drug addicts for 1984 to 1985 financial year was as follows (Institute of Race Relations in South Africa, 1982):

TABLE 6

Whites	10 338 000
Indians	105 000
Coloureds	1 771 000
Africans	705 000

In 1981, there were 18 rehabilitation centres for white alcoholics and drug abusers, 2 for Coloureds and 1 for blacks at Madadeni. Further, the estimated per capita expenditure during 1980 to 1981 on school pupils for the various race groups was as follows:

White	6 097 900
Indians	51 500
Coloureds	1 207 000
Africans	380 000

Although the statistics cited above are old, they nevertheless adequately illustrate inequity in the distribution of health care facilities in South Africa. In this respect Patel and de Beer, 1990 state that certain inequities will remain with us for many years. Hospitals and other health care facilities are mostly concentrated in white areas. This is a serious problem where patterns of settlement have been distorted by the Group Areas Act and the homeland system. Further there are other barriers to health and welfare services. These include language, sex and the cultural background of health care workers. Several suggestions have been made. Some of these are: the creation of a welfare state by Hlatshwayo, 1990; National Health Insurance Scheme by

de Beer and Broomberg, 1990; the centralisation of all health care services including those in the homelands by Letsebe and Loffell, 1990.

In concluding tertiary stress management, it seems appropriate to state that the restructuring of the health care services in South Africa, regardless of the format they may take among those already propounded, should be the one that is based on equity with regard to racial, class, gender and geographic divisions.

4.4.4 Summary

There are two prominent subjects which have been discussed, namely coping and stress management. In the author's opinion these two concepts are synonymous especially in view of the former being defined as the efforts to manage perceived stress. It was pointed out that coping is a function of both situational and dispositional factors and that coping strategies may not be effective in all situations. Some may be successful where others have failed.

Stress management was discussed as a measure that can be undertaken at three levels. These are: the primary level which has to do with individual stress management strategies, secondary level being the organizational strategies and lastly, tertiary stress

management was discussed as being the health care facilities provided by the state for its citizens. There is one point that must be emphasized. That is, stress management or coping is basically an individual matter. The provision of health care facilities either by the employer organization or government does not guarantee utilization by the individual. He may choose to utilize these in order to turn over a new leaf for the better or he may retain his maladaptive behaviour patterns only to dwindle and die in the end.

CHAPTER FIVE

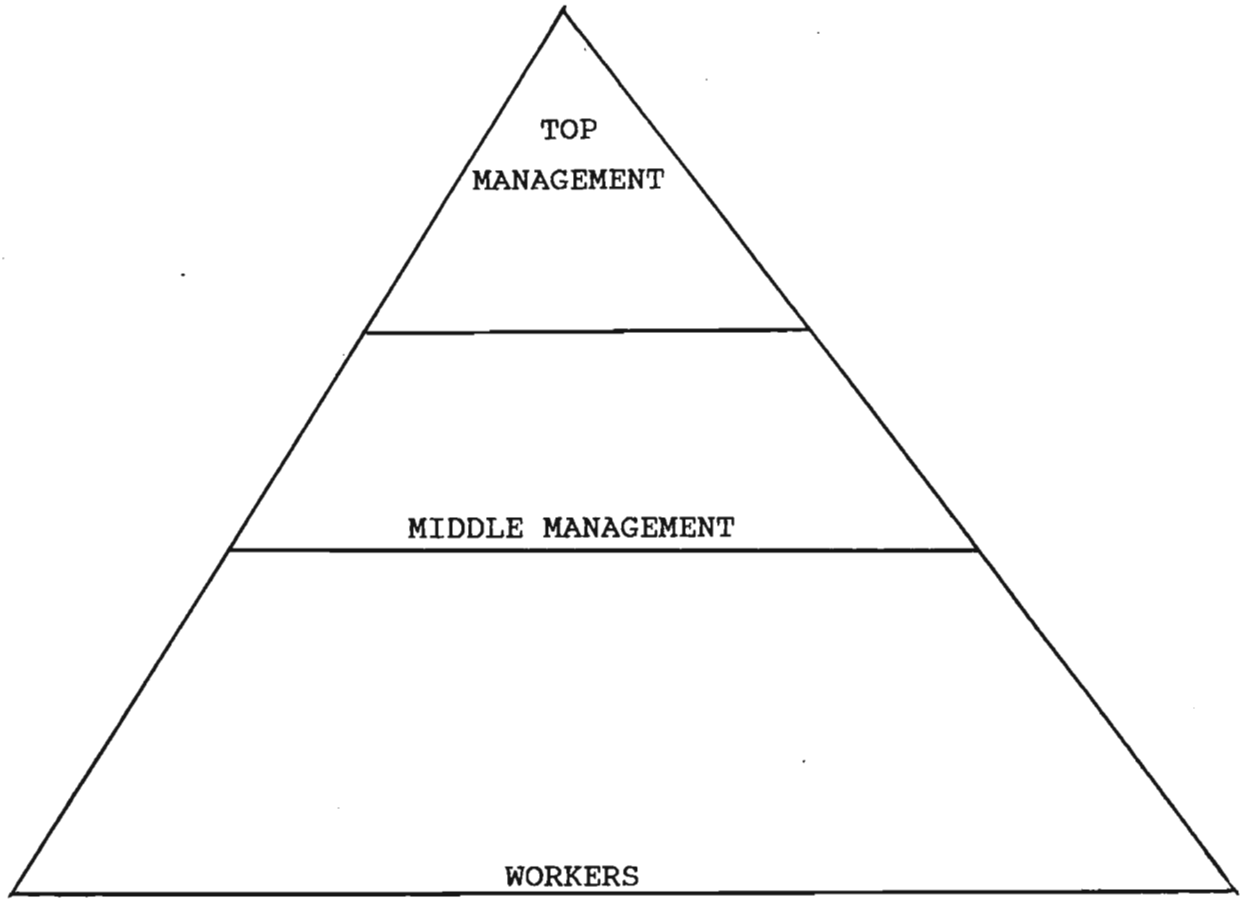
5 METHODOLOGY

This chapter includes the following:

(a) The description of the sample.
(b) The sampling method.
(c) The instruments used to collect the data.
(d) Collection of data.
(e) Analysis of data.

5.1 The Description of the Sample

In accordance with vertical differentiation, Khandwalla (1977), Wexley and Yukl (1977) an industrial organization may be divided into three occupational levels as follows:



Vertical differentiation of an industrial organisation Khandwalla (1977) and Wexley and Yukl (1977)

Two of the above three occupational levels were considered for sampling. These were the middle managers and workers. The subsample of middle managers consisted of 75 English white males. The other subsample was made up of 75 Zulu-speaking black males. In both subsamples the age of the members varied between 25 years and 35 years and were those

who could read and write in their mother-tongue languages, namely English and Zulu.

(a) **Middle Managers**

The main function of the managers is that of supervising people and things (French and Caplan, 1980). The supervision of people involves the personal direction (Malherbe, 1986) of the subordinates' work, their careers, their professional development and their security. The supervision of things on the other hand involves the assumption of personal responsibility over items such as budgets, projects, equipment and others.

Some managers, especially those at a lower level like the supervisors, are often required to play the role of an intermediary or linking pin function (Orpen, 1976) of both up and down communication. According to van Dijkhuizen (1988), this is one of the most important sources of stress. Another source of stress for managers is the role conflict (French and Caplan, 1980). They are often required to play the role of a leader of the lower occupational level while at the same time they are the subordinates of a higher management structure.

In most industrial organizations in South Africa the management occupational level is dominated by the White population. For instance, in both executive and managerial levels there were 11% Africans compared to 83% Whites in the government sector in 1991. In the

private sector there were 9% Africans and 73% Whites in these two occupational levels during the same period (Statistical Services, 1991). One would assume that most of these managers, Black or White, are bilingual. The incumbent of a management position in South Africa would be expected to be fluent with one of the two official languages (English or Afrikaans) in addition to his mother-tongue. The situation becomes worse for the Blacks in these positions if the culture of an organization is Afrikaans. In this case, it is generally expected that the Black manager should know Afrikaans in addition to English which he acquired from his educational career and his mother-tongue. The pertinence of language in the present discussion is that the population from which management representative sample was drawn knew both English and Afrikaans and one of the two was a mother-tongue. The subjects of the sample were all males whose ages varied between 16 years to 60 years.

(b) **Workers**

The activities of the general workers are mainly manual in nature. They are often required to operate machines and to perform a variety of manual activities on the shop floor level. Their work is routine and often repetitive. These are the workers who have been referred to as blue-collar workers (Murphy, 1985).

One can deduce from the previous discussion that the dominance of management positions by Whites implies that the lower level of work is predominantly Black.

The manual dexterity of the Black workforce ranges from the unskilled to the semi-skilled and from the uneducated to the semi-educated.

Besides being subjected to occupational race discrimination, the Black workforce does not have political franchise which their White superiors enjoy. Industrial franchise was extended to them in 1980 in accordance with the recommendations of the Wiehahn Commission (Finnemore and Van der Merwe, 1986).

The primary reason for the detailed description of these two occupational levels is to elucidate disparities and conflicts that exist between and within them. This underlines the significance of the present research efforts on these two occupational groups.

5.2 Sampling Method

The stratified random sampling method was used to draw a total sample of 150 subjects. Each occupational level such as middle managers was regarded as a stratum. This means that there were two strata out of which subjects were randomly drawn to form two corresponding subsamples of 75 workers and 75 middle managers.

5.3 The Instruments

The following instruments were used to measure the research variables:

(a) Coping with Stress Questionnaire (Cooper, Cooper and Eaker, 1988).

(b) Cooper's Work Stress Questionnaire (Cooper, Cooper and Eaker, 1988).

(c) General Health Questionnaire (Goldberg, 1972).

A method called back and decentering (Retief, 1988) was used to translate all the three instruments mentioned under (a), (b) and (c) into Zulu (see Appendix D,E and F). In accordance with this method, the translated Zulu versions were given to a second person who re-translated them to English without having perused the original English questionnaire (see Appendix G,H and I). The aim of this exercise was to maintain the equivalence of meaning between the original English and the translated Zulu versions. The psychometric information regarding these scales was acquired only in respect of the General Health Questionnaire (Goldberg, 1972). Goldberg (1972) reported a test retest reliability of +0,90 and a split half reliability of +0,95. The validity correlation coefficient was found to be +0,80 on a sample of 553 psychiatric patients.

5.4 Collection of Data

Application to conduct research on Transnet premises was submitted to Transnet Head Quarters in Johannesburg and permission was subsequently granted. Each manager in charge of a shed in the Durban Harbour (now falling under the jurisdiction of Portnet - a Transnet business unit in charge of Durban Harbour)

was approached and the purpose of research explained. The method of distributing the English questionnaires to middle managers in charge of the workers were also discussed. This included a discussion on how the three questionnaires were to be completed and returned to the office of the manager in charge of the depot.

On the other hand, Black instructors from the Department of Training and Development were instructed on how to complete the translated Zulu version of the three questionnaires. They were then asked to administer the Zulu questionnaires to Portnet workers. The English and Zulu respondents were not asked to fill in their personal particulars such as their names and pension numbers. This was done to alleviate fears of victimization and to ensure anonymity.

5.5 Analysis of Data

The responses from the workers and managers were scored and the means of each of the six scales were then calculated. In total, however, there were four means for each subsample. This is because one of the questionnaires, namely Coping with Stress (Cooper, Cooper and Eaker, 1988) is divided into two sections of adaptive and maladaptive behaviour patterns. There were therefore eight means; four for the middle managers and another four for the workers subsamples (see Appendix J and K).

Since the first two research hypotheses projected some kind of relationship between two variables of the same

subsample, the Pearson product-moment correlation coefficient was chosen as the most appropriate and powerful to produce reliable results. Siegel (1956) suggests that this is the most suitable statistic to be used when the data is in the interval scale. The Pearson product-moment formula however was obtained from Runyon and Harber (1980). Further, the t test as suggested by Siegel (1956) was used to test the significance of the obtained rhos(?).

The remaining three research hypotheses required the establishment of differences between two variables (vertical comparisons) across the two subsamples. In order to achieve this, means corresponding to two variables from both subsamples were calculated in accordance with a formula suggested by Downie and Heath (1974). Subsequent to this, the standard deviations directly from new scores were computed according to formula suggested by Downie and Heath (1974). In order to establish whether the observed difference between the two variables was significant, a t test also suggested by Downie and Heath (1974) was computed. The results of all the research hypotheses are available in the following chapter.

5.6 Summary

This chapter has been about the scientific methods which one must apply to minimize the possibilities of spurious results. It included a description of the sample, the method that was applied to select sample subjects, the instruments which were used to collect

the data and the steps which were followed in this regard. The last subject of discussion in this chapter had to do with statistical methods used to analyze the data. It is hoped that the perusal of this chapter will reveal certain methodological deficiencies such as that there was no further stratification into grades within each of the two occupational levels and that there is a lack of psychometric information on the two questionnaires. This and other demerits will be elaborated upon in the critique section.

CHAPTER SIX

6 RESULTS

The presentation of the results will be in the following format.

(i) Five pairs of research hypotheses to be tested on the subsamples of middle managers and workers.

(ii) The results of the tests. In this respect, the reader will be referred to the numerical work in the Appendix section whenever it seems necessary.

(iii) A concise discussion of the results (summary).

6.1 First Pair of Research Hypotheses

H_1 A high level of perceived stress will be associated with a low level of perceived general health.

H_o A high level of perceived stress will be associated with a high level of perceived general health.

In order to test these research hypotheses, there will be two computations. There will be one for the workers subsample (see Appendix L) and another for the middle managers (see Appendix M). The obtained v's will be subjected to a t statistical test in order to determine their significance.

B **WORKER SUBSAMPLE**

Reference to Appendix K will show that the obtained r=0,15. To find out if our observed raw is of any significance at all, we will have to convert it into a statistic t with df=N-2 according to the following formula (Siegel, 1956).

$$t = r\sqrt{\frac{N-2}{1-r^2}}$$

1 H_o The correlation coefficient of r=,15=0
H_i The correlation coefficient of r=,15≠0

2 Statistical Test. The t test of $t=r\sqrt{\frac{N-2}{1-r^2}}$ will be used because it is one of the tests that may be used in this connection (Siegel, 1956).

3 Level of Significance: Let α=0,01 and N=75

4 Sampling Distribution: The t sampling distribution will be used to obtain the probability associated our observed

5 Region of Rejection: The probability of 0,01 or less will lead to the rejection of the Null Hypothesis.

b Decision. Working

$$t = r\sqrt{\frac{N-2}{1-r^2}}$$

$$= ,15\sqrt{\frac{75-2}{1-(,15)^2}}$$

$$= ,15\sqrt{\frac{73}{1-,0225}}$$

$$= ,15\sqrt{\frac{73}{0,9775}}$$

$$= ,15\sqrt{74,68}$$

$$= ,15 \times 8,6$$

$$= 1,3$$

Df: N-2 = 75 - 2

= 73.

The problem with our df of 73 is that it does not appear in the sampling distribution of our chosen t statistic (Downie and Heath, 1974., Siegel, 1956., Wright, 1976., Howell, 1989, and Turney and Robb, 1971). The last numerical figure representing df in some t distributions is 120 and then 60 and 40 as one goes down to 1. Consequently, one is left with 120 as being the upper limit and 60 as the lower limit. Our df of 73 can be located between these two limits.

For the purposes of the present discussion, we shall use 60 as our df because it is nearer to 73 than 120. In this regard the probability associated with the t test of the magnitude of 1,3 at 60 df is far less than the value of 2,660 at 0,01 level of significance but higher than the value of 1,296 at ,20 level of significance for a two tailed test.

We therefore reject the Null Hypothesis at 20 percent and conclude that our obtained r=,15 is significant. This is to say, the two variables namely perceived stress and perceived general health of the workers are associated.

B MIDDLE MANAGERS

If we refer to Appendix M we shall observe that our obtained raw for the middle manager's sample is ,23. To find out if our observed r is significant, we will have to convert it to a t statistic with df N-2 and according to the following formula (Siegel, 1956).

$$t = r\sqrt{\frac{N-2}{1-r^2}}$$

1 H_O The correlation coefficient of r=,23=0

H_1 The correlation coefficient of r=,23≠0

1 H_o The correlation coefficient of r=,23=0

H_1 The correlation coefficient of r=,23≠0

2 Statistical Test: The t test of $t = r\sqrt{\frac{N-2}{1-r^2}}$ will be used as it is one of the tests that may be used in this connection.

3 Level of Significance: Let α =0,01 and N=75

4 Sampling Distribution: The t sampling distribution will be used to obtain the probability associated with our observed correlation coefficient.

5 Region of Rejection: A probability of 0,01 or less will lead to the rejection of the Null Hypothesis.

6 Decision : Working.

$$t = ,23\sqrt{\frac{N-2}{1-r^2}}$$

$$= ,23\sqrt{\frac{75-2}{1-(,23)^2}}$$

$$= ,23\sqrt{\frac{73}{,9471}}$$

$$= ,23\sqrt{79,19}$$

$$= ,23 \times 8,9$$

$$= 2,1 \rightarrow$$

Df : N - 2 = 75 - 2

= 73

Since we are confronted with a similar problem with regard to our df, we will take recourse to the same solution of using 60 as our df. In this regard the obtained t of 2,1 is less than the critical values of 2,66 at ,01 but greater than the value of 2,000 if ,05 for two tailed test is used. We therefore reject the Null Hypothesis at 5 percent and assert that our obtained r of ,23 is significant. By this we mean that, in the population from which the sample of middle managers was drawn, the two variables of perceived stress and perceived general health are associated.

C SUMMARY

Concisely, the results can be presented as follows:

TABLE 6

		WORKERS	MIDDLE MANAGERS
(a)	The Pearson product moment coefficients	0,15	0,23
(b)	Statistical Test t	1,3	2,1
(c)	Df N - 2 = 75 - 2	73	73

Turney and Robb (1971) suggested a system which can help to determine the strength of the relationship between two or more variables. This system is as follows:

,80	to	1,00	Very high correlation
,60	to	,79	High correlation
,40	to	,59	Moderate
,20	to	,39	Slight correlation
,10	to	,19	Very slight correlation

Using this as a frame of reference, it will be apparent that although the computation of t led us to conclude that perceived stress and perceived general health among the workers and middle managers are related, the association is indeed a very weak one. (See Chapter 8 for reasons contributing to this weak correlation).

6.2 Second Research Hypothesis

H_o Effective coping skills will be negativel related with perceived general health.

H_1 Effective coping skills will be positively related with perceived general health.

The procedure that will be used to analyse data relating to the scores of effective coping skills and those of perceived general health will be similar to the one used in the previous hypothesis. The workers' scores on these two variables will be on Appendix N and those of middle managers on Appendix O. The computations of raw for both subsamples will be in the same Appendices.

A WORKERS

Appendix N will show that the obtained r for worker subsample on the variables of effective coping skills and perceived general health is 1,2. In order to find out if this is an indication of a significant correlation between these two variables, our observed coefficient of 1,2 will have to be converted into a t statistic with df = N - 2. This will be achieved according to the following formula (Siegel, 1956):

$$t = \sqrt{\frac{N-2}{1-r^2}}$$

1 H_o The correlation coefficient of r = 1,2 = 0
H_i The correlation coefficient of r = 1,2 $\neq$ 0

2 Statistical Test: The t test of t = r = will be used because it is one of the tests that may be used in this regard (Siegel, 1956).

3 Level of Significance: Let α = 0,01 and N = 75

4 Sampling Distribution: The t sampling distribution of 0,01 or less will lead to the rejection of the Null Hypothesis.

5 Region of Rejection: The probability of 0,01 or less will lead to the rejection of the Null Hypothesis.

6 Decision: Working

$$t = r\sqrt{\frac{N-2}{1-r^2}}$$

$$= 1{,}2\sqrt{\frac{75-2}{1-(1{,}2)^2}}$$

$$= 1{,}2\sqrt{\frac{73}{1-1{,}44}}$$

$$= 1{,}2\sqrt{\frac{73}{0{,}44}}$$

$$= 1{,}2\sqrt{72{,}56}$$

$$= 1{,}2 \times 8{,}5$$

$$\fallingdotseq 10{,}2 \rightarrow$$

Df = 75 - 2

= 73

In accordance with our common practice of using 60 as our df in the t sampling distribution we observe that our obtained t of the magnitude of 10,2 equals 0,005. That is, it can occur by chance only 5 times out of a thousand. This probability is less than our chosen level of significance of 0,01. We therefore reject the Null Hypothesis and say that, in the population from which our subsample of workers was drawn, the variables of coping skills and perceived general health are significantly correlated.

B MIDDLE MANAGERS

The computation of r in Appendix O shows that the obtained coefficient is 0,73. As a common practice, our obtained r must be subjected to a t statistical test in order to find out if this coefficient is indeed indicative of a significant relationship between the variables of effective coping skills and perceived general health among the middle managers. The following formula will be used for this purpose (Siegel, 1956).

$$t = r\sqrt{\frac{N-2}{1-r^2}}$$

1 H_O The correlation coefficient of r = ,73 = 0
H_1 The correlation coefficient of r = ,73 ≠ 0

2 Statistical Test: The t test of $t = r\sqrt{\frac{N-2}{1-r^2}}$ will be used because it is one of the tests that can be used in this connection.

3 Level of Significance: Let α = 0,01 and N = 75

4 Sampling Distribution: The t sampling distribution will be used to obtain the probability associated with our observed correlation coefficient.

5 Region of Rejection: A probability of 0,01 or less will lead to the rejection of the Null Hypothesis.

6 Decision: Working

$$= 0,73 \sqrt{\frac{75-2}{1--(0,73)^2}}$$

$$= 0,73 \sqrt{\frac{73}{1--,5329}}$$

$$= 0,73 \sqrt{\frac{73}{0,4671}}$$

$$= 0,73 \sqrt{156,28}$$

$$= 0,73 \times 12,5$$

$$= 9,1 \rightarrow$$

Df: N - 2 = 75 - 2

= 73

The probability associated with a t test as large as 9,1 at 60 df = 0,005. That is, it can occur by chance 5 times out of a thousand. This probability is less than 0,01. We therefore reject the Null Hypothesis and conclude that the correlation coefficient of 0,73 is significant. The implication of this conclusion is that the variables of efficient coping skills among the middle managers are in fact correlated with perceived general health.

D SUMMARY

The results of the second research hypothesis can be presented as follows:

TABLE 7

		WORKERS	MIDDLE MANAGERS
(a)	The Pearson product-moment co-efficients	0,9	0,73
(b)	Statistical Test t	10,2	9,1
(c)	Df = N-2 = 75-2	73	73

These results imply that the variables of effective coping skills and perceived general health are associated in both populations of middle managers and the workers.

6.3 Third Pair Of Research Hypotheses

H_o There will be no significant difference between the perceived stress levels of the middle managers and that of the workers.

H_1 There will be a significant difference between the perceived stress levels of the middle managers and that of the workers.

TABLE 8

		WORKERS	MIDDLE MANAGERS
(a)	Means (Refer to Appendix J and K)	112,1	71,2
(b)	Standard deviations	6,7	
(c)	ΣX_1^2	-303704	
(d)	ΣX_2^2		55983
(e)	Statistical Test t	6,1	
(f)	Df = N_1+N_2-2 = 75+75-2 =	148	

Our df is $N_1+N_2-2=75+75-2=148$. The last df in the t sampling distribution is 120. To determine the level of significance for our obtained t, we shall take recourse to and at this level the value of t at 0,05 is 1,960. This is far less than our obtained t of 6,1. As a result we will reject the Null Hypothesis and conclude that there is a significant difference between the mean scores of the workers and that of the managers.

The implication of this conclusion to our research hypothesis is that there is a significant difference between the levels of perceived stress of the managers and those of the workers.

6.4 Fourth Research Hypothesis

H_o There will be no significant difference between the coping skills of the two occupational groups.

H_1 There will be a significant difference between the coping skills of the two occupational groups.

Results

TABLE 9

		WORKERS	MIDDLE MANAGERS
(a)	Means (Refer to Appendix J and K)	20,84	23,44
(b)	Standard deviation	0,81	
(c)	ΣX_1^2	-2395,6	
(d)	ΣX_2^2		1282,5
(e)	Statistical Test	-3,2	
(c)	Df; N_1+N_2-2; 75+75-2 =	148	

As was the case with the previous research hypothesis, 120 will be used as either equal to or nearer to our df of 148. At this df the value associated with t at 0,05 is 1,960. Since this value is less than our obtained t of -3,2 we reject the null hypothesis and conclude that there is a significant difference between the effective coping skills of the workers and those of the managers.

6.5 Fifth Research Hypothesis

H_o There will be no significant difference between the general health of the two occupational groups.

H_1 There will be a significant difference between the general health of the two occupational groups.

Results

TABLE 10

	WORKERS	MIDDLE MANAGERS
(a) Means (Refer to Appendix J and K)	5,8	1,6
(b) Standard deviation	,35	
(c) ΣX_1^2	231,1	
(d) ΣX_2^2		437,5
(e) Statistical Test t	12	
(f) Df; N^1+N^2-2; 75+75-2 =	148	

Using 120 as our df instead of 148 df, we observe in the t sampling distribution that the value which is associated with t is 1,960 at 0,05 level of significance. This this value is far less than our obtained t of 12, we therefore reject the Null Hypothesis and conclude that there is a significant difference between the means of the two subsamples. This is a confirmation of our alternative research hypothesis that there is a significant difference between the perceived general health of the two population groups from which the two subsamples were drawn.

SUMMARY

The means, standard deviations and a t statistical test have been computed for the three research hypotheses (that is, hypotheses 6.3, 6.4 and 6.5). The aim of these computations

has been to find out if there is a significant difference between the workers and the managers with respect to three variables. These are: perceived stress levels, effective coping skills and perceived general health.

These statistical procedures led to the conclusion that there is a significant difference between the middle managers and the workers with regard to these variables. Thus, each of the three research hypotheses was confirmed. Explanation about the reasons for these differences will be provided in the section dedicated for the discussion of the results.

CHAPTER SEVEN

7 CRITIQUE

This chapter focuses on the demerits of the research project as a whole. It will therefore include the following:

(i) Lack of psychometric data
(ii) Sampling method
(iii) Focus of the research
(iv) Summary

7.1 Lack of Psychometric Information

Most of the demerits regarding the present study can be found in its methodology. This has to do with the questionnaires. Firstly, there is a lack of psychometric information regarding two of the three questionnaires. The validity and reliability of the following questionnaires therefore is not known.

(i) Coping with stress questionnaire.
(ii) Coopers work stress questionnaire.

According to Brown and Ghiselli (1955) empirical validation demands that the scores derived from an inventory or questionnaire be demonstrated to agree highly with some other reliable device that measures the differences or relationships involved in the description. This does not appear to have been done on these two scales.

Secondly, although attempts were made to achieve both functional and concept equivalence through the back translation method (Retief, 1988), a pretest procedure regarding the Zulu versions of the questionnaires should have been adhered to. To some extent, this could have fulfilled the validation requirements of the translated questionnaires. This is to say, the results would have told us something about the construct validity of the new scales. Further, a test-retest or split half methods of reliability should have been adopted to ensure the consistency of results or scores (Anastasi, 1976) upon repeated administration of the questionnaires. Added to this, there is a possibility of faking inherent in most self-report questionnaires regardless of the introductory statements to the contrary (Anastasi, 1976). In the absence of psychometric information one can only be consoled by face validity of both the original and the translated questionnaires.

7.2 Sampling Method

Another demerit of the present study is that the random stratification method was applied as far as the occupational levels. Consequently, there were only two strata, namely managers and workers. A further examination shows that there are more strata within each occupational group. For instance, the occupational group of workers could have been stratified into grades. The same could have been done for middle managers. The advantage of this sampling

method is that it would have been possible to identify particular stressors within each grade. As a result, the present study failed to achieve this. Nevertheless, a possible direction to be followed in future research has been identified.

7.3 Focus of the Research Project

The enumeration of this aspect as a demerit does not imply that the focal point of the research was wrong but that it was inadequate. As can be gleaned from Chapter One, the present study had two focal points, a horizontal and a vertical one. The aim of the horizontal perspective was to establish the existence of relationships between two variables within one occupational group (Refer to hypotheses one and two).

In the vertical direction the aim was to establish whether there was any significant differences between two variables across the two occupational groups (Refer to hypotheses 3, 4 and 5). An opinion is held that this is devoid of any practical value for an employer organization which gave permission for the research of this nature to be conducted within its premises. In order to be helpful, the research ought to have aimed at inter alia the identification of particular stressors within specific grades of the organization's occupational structure. This would have been parallel to widely recognized corporate objectives of identifying, transforming or eliminating anything that inhibits profit making, social responsibility, service rendition and survival of an

industrial enterprise (Beach, 1985). The present study was not instrumental towards the attainment of this objective.

7.4 Summary

The unavailability of psychometric information on the original and translated questionnaires, inadequate sampling method, and the focus of the research hypotheses have been identified as the shortcomings of the present study. A careful examination of some of these shows that one or two of these constitute a research project on their own which can be considered appropriate for an Honours or Masters level. Due to time and personnel constraints these could not be accommodated in the present study.

It is hoped, however, that these demerits will not undermine the following merits:

(i) A thorough understanding of the theory of perceived stress was achieved after literature review.
(ii) Future research areas have also been identified.
(iii) The fulfilment of a long-held ambition, namely the integration of theory and practice in research.

CHAPTER EIGHT

8 Discussion

The previous chapter alluded to the approach of the present study as being cross-sectional, namely horizontal and vertical comparisons. This approach will be used as a framework for the discussion of the results. This will include references to the findings of other studies which are in some respects akin to the present one.

8.1 Horizontal Comparisons

Horizontal comparisons of the present had to do with the first two research hypotheses within one occupational group. Firstly, an attempt was made to find out if high levels of perceived stress were in any way associated with low perceived general health among the workers and managers separately. Statistical procedures used for this purpose showed that the relationship which existed between these two variables was significant but very weak in both populations (Refer to Chapter Six). This substantiates the current theoretical speculations that the increase of the levels of perceived stress leads to the deterioration of a person's well-being. In this regard see Chapter Two which provides a discussion on the relationship between stress and performance.

The obvious question in this regard is; why is the relationship between these two variables slight? To answer this question it seems essential to refer to the second research hypothesis. This hypothesis sought to establish the nature of relationship between effective coping skills and perceived general health. There was therefore a correlation exercise on the scores obtained by the workers initially and another on the scores obtained by the middle managers. The results obtained showed that there were positive relationships between effective coping skills and perceived general health. Differently stated, the more adaptive a person's behavioural patterns are, the healthier he will become. These results concur with Lazarus's notion that health outcomes are a product of effective coping rather than as a consequence of the presence or absence of perceived stress (Holroyd and Lazarus, 1982). In the Man - Environment theory (Cox and Mackay, 1981) used as theoretical background for the present study, coping is viewed as both psychological (involving cognitive and behavioural strategies) and physiological. If coping is not effective to counter environmental demands, then perceived stress in the form of functional and structural damage is produced (Cox, 1978). The convex of this is that if the individual's coping capacities are effective vis a vis the environmental demands, the individual is in a position to attain better health.

The pertinence of these theoretical formulations in support of the findings of the second hypothesis in

the present discussion is that they provide an answer to the previous question, namely, why is the relationship between high levels of perceived stress and low general health weak. To answer this question, it can be deduced from the results of the second research hypothesis that the weakness of the relationship between the two variables is attributable to effective coping strategies used by members of the two populations (middle managers and workers) to alleviate perceived stress. According to Williams and House (1985), coping responses are effective if they reduce the relationship between stressor and strain.

More and above the substantive theoretical formulations, certain studies have confirmed the results of research hypotheses one and two. In one of the studies for instance, Parasuraman and Cleek (1984), concluded that a more significant reduction of perceived stress and job dissatisfaction would result if workers learned to avoid maladaptive behaviour in coping with perceived stress. Whereas the present study has shown a weak relationship between high levels of perceived stress and low perceived general health, Howard, Rechnitzer and Cunningham (1975) in their study of 300 managers, found that these two variables were not associated. They attributed this to coping behaviours such as detachment from work and maintaining good health.

In yet another study, La Rocco, House and French (1980) concluded that social support was responsible

for the reduction of relationship between perceived stress and perceived general health. The same factor was found to be playing the same role among the blue collar workers in William and House's study (1985). Besides social support, other coping behaviours responsible for the alleviation of perceived stress on Rechnitzer and Cunningham (1975), the following:

(a) Change to an engrossing, non-work activity.
(b) Build better resistance through regular sleep and good health habits.
(c) Compartmentalize work and non-work life.
(d) Talk with co-workers.
(e) Engage in physical exercise.

8.2 Vertical Comparisons

Vertical comparisons in the present study had to do with the establishment of differences between the two occupational groups (middle managers and workers) regarding perceived stress levels, coping skills and perceived general health. The ratios which were obtained showed the existence of significant differences between the workers and middle managers regarding these three variables. These differences can be attributed to the nature of work performed by members of these two occupational groups. Middle managers often perform jobs which require more mental power than those performed by workers which often require the application of their manual dexterity.

Due to the paucity of comparative (management - worker) studies within a single industrial setting

(Cooper and Braamwell, 1992) one is compelled to take recourse to the studies of job satisfaction. The reason for the selection of this job dimension is that it can be used as a general indicator of eustress inasmuch as job dissatisfaction can be used for distress (Strümpfer, 1985). Using this as a basis for our deductions, evidence which confirms the results of the present study can be found. For instance, Cooper and Braamwell (1992) found that these were significant differences between managers and shopfloor workers in job satisfaction. Further, shopfloor workers were more unhealthy in terms of psychosomatic symptomatology.

In one of the few studies focussing on both managers and shopfloor workers, Cooper and Braamwell (1992) found that there were marked differences between these two occupational groups on perceived stress as indicated by their sickness absence, and physical health. However, instead of examining the nature of jobs performed by members of these two occupational groups to establish the reasons for these differences, these two investigators pinpointed methodological problems as being responsible. According to them, there are important differences between the styles of self-report and the experience of stress among the managers and the shopfloor worker. They further explain that there may, for instance, be a tendency among shopfloor workers not to report symptoms which carry negative connotations of mental ill-health.

Other investigators have directed their attention on social support to account for these differences. For instance, Caplan, Cobb, French, Harrison and Pinneau (1975) found that in a large population representing diverse occupational categories, social support was consistently negatively related to stress and a variety of strains. This substantiates the findings (within horizontal comparison) of the present study on the relationship between effective coping and perceived general health. In terms of these, social support (as a form of coping) would be accountable for a positive relationship between these two variables within a single occupational group while at the same time social support is responsible for differences between these variables from two occupational groups (vertical comparison). Orpen (1982) found that social support reduced negative effects of job stress among the South African blacks but not among the whites. This implies that social support does not only account for differences in the experience of stress between two occupations but also between two different race groups. The validity of this deduction cannot be over-emphasized especially if the composition of the two samples for the present study are taken into cognizance (see Chapter 5).

Besides the contextual factors (such as social support from the family, peers or colleagues), other investigators have considered the individual's personality as being accountable for differences between occupations and individuals. According to

Mackay and Cooper (1987), the individual's personal characteristics can serve two functions. It can increase the resistance to the effects of perceived stress or it can lead to vulnerability with increased health problems. Personality types which have been considered in relation to perceived stress are locus of control (Cook and Epstein, 1987), type A and B personality (Friedman and Rosenman) and the hardy personality (Kobasa, 1979).

In this respect Cooper and Braamwell (1992) found that men with moderately internal locus of control orientation coped more effectively with stress than those whose locus of control belief may be classified as extreme internal, extreme external or moderately internal. In this study, Cooper and Braamwell (1992) also found that managers were significantly type A personality whereas shopfloor workers were significantly higher on the external locus of control. The assumption regarding hardiness is that among people who face significant stressors, those with high hardiness will be significantly less likely to fall either mentally or physically ill than those who lack hardiness. In this respect, Kobasa (1979) studied a group of executives whose retrospective reports indicated that they had experienced equivalent high levels of stressful events. Half of the subjects in this study reported becoming ill after experiencing the stress, whereas the other half did not. Although the demographic factors did not distinguish between groups, the measures of hardiness did.

As stated already, a prominent feature of the present study is its uniqueness. Consequently, there are very few if any studies at all which have considered hardiness as variable that can distinguish between middle managers and workers or vice versa. Superficially however it can be assumed that hardiness is a personality factor with a normal distribution in many populations regardless of occupational membership. In both tails of the distribution therefore, one is likely to find both managers and workers.

8.3 Summary

The results of the present study have been discussed from two perspectives, namely horizontal and vertical. In both perspectives, social support was identified as being responsible for the observed relationships and differences. In this respect, it is worth emphasizing that although there are differences and relationships between perceived stress and its correlates among different occupational groups, existing evidence according to Murphy (1984) provides little basis for concluding that the nature and operation of social support differs for blue collar workers versus others such as managers.

With regard to personality, Katz and Kahn (1978) state that evidence to date on problems of perceived stress at work is agreed on the importance of personality and

other individual attributes as modifying the relationship between specific stresses and responses. A comment that is of specific relevance to the South African situation is that an investigator needs to look beyond social support and personality when speculating about the relationships and differences between perceived stress and its correlates. In South Africa these differences and relationships may not only be a function of different occupational levels with their difference inherent stressors but may be a reflection of racial differences as well.

CHAPTER NINE

9 Conclusion and Recommendations

This chapter is concerned with two issues. These are; the conclusion of the present study and recommendations for future research. The conclusion has to do with the contents of the present study whereas the recommendations will be based on literature review and the critique.

Firstly, this study is based on the belief that perceived stress is a product of a transactional relationship between man and his environment rather than being caused by each of these separately. Consequently, Chapter One was dedicated to the Man - Environment Theory (Cox and Mackay, 1981) which can be regarded as a point of entry into the study as a whole.

In the subsequent chapters each of these dual transactional factors was considered in depth. Chapter Two for instance dealt with a concise overview of theoretical approaches into the study of perceived stress. A larger portion of this chapter was then reserved for some stressors commonly found in the work environment. The aim was to show how these affect human performance within the workplace. Chapter Three focussed on the psychological, physiological and the biological consequences of perceived stress.

Having considered work environment as a context of perceived stress which adversely affects human performance, the individual (or man) became the focal point. In this respect emphasis was laid on what the individual himself can do to cope with the deleterious effects of perceived stress. This included certain measures that can be taken by the employer organization and the government to facilitate the management of perceived stress. Thus it was noted in Chapter Four that the provision of facilities either by the employer organization or the government does not guarantee their utilization by the individual to maintain the levels of perceived stress within tolerable limits. It was accordingly concluded in this chapter that perceived stress is an individual phenomenon and that it is up to him/her to choose between adaptive and maladaptive behaviour patterns.

The following recommendations are both the direct and indirect outcome of Chapters Five, Six, Seven, Eight and the preceding chapters as outlined above.

(a) There is an apparent need for research on perceived stress within a single employer organization. This view had already been expressed by Cooper and Braamwell (1992). Among other things the aims of such research should be the following:

    (i) the establishment of an occupational level in which employees experience higher levels of perceived stress.

(ii) subsequent to the above, human resource practitioners should focus at the identification of particular content and contextual work dimensions which entail psychological, biological and physiological harm to the individual worker.

The fulfillment of the second aim will be of practical value to the employer organization which might then be in a better position to modify or eliminate stressors in the work environment. More than this, the employer organization might be required to provide health maintaining facilities in its work environment.

(b) Self-report scales such as those used in the present study have an inherent deficiency of faking, that is, an attempt on the part of the subject to manifest responses that do not accurately reflect his predispositions (Brown and Ghiselli, 1955). This is aggravated if any of the self-report measure is translated into another language and used for research purposes merely on the basis of face validity. There is therefore an urgent need for the South African investigators to undertake validity and reliability studies to ensure the scientific utility of these scales.

(c) Another possible area of research has been identified by Williams and House (in Cooper and

Smith, 1985) who state that women and minorities may both experience unique and perhaps greater levels of perceived stress and also have greater needs for social support. Future studies of occupational stress must adequately sample blacks and women so that the incidence and severity of perceived stress among these population groups can be established.

(d) To the employer organization which gave permission for research to be conducted in its premises, the value of the present study is that it has been the first of its kind. It can therefore be regarded as a first step towards research undertakings that will yield results with practical value. It has already been mentioned that this can be attained if recommendations A and B are implemented.

APPENDIX A

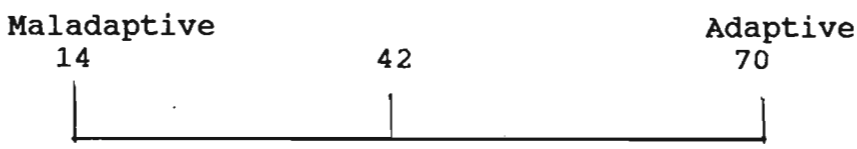
COPING WITH WORK STRESS

When you have a work-related problem or stress to what extent do you do the following:

		Never	Rarely	Periodically	Regularly	Very Often
A	**Adaptive Behaviour**					
1	Seek support and advice from superiors	1	2	3	4	5
2	Try to deal with the situation objectively in an unemotional way	1	2	3	4	5
3	Try to recognise your own limitations	1	2	3	4	5
4	Talk to understanding colleagues	1	2	3	3	5
5	Set priorities and deal with problems accordingly	1	2	3	4	5
6	Accept the situation and learn to live with it	1	2	3	4	5
7	Seek as much social support as possible	1	2	3	4	5
B	**Maladaptive Behaviour**					
8	'Staying busy'	5	4	3	2	1
9	'Bottling things up'	5	4	3	2	1

		Never	Rarely	Periodi-cally	Regularly	Very Often
10	Using distractions (to take your mind off things)	5	4	3	2	1
11	Smoking more	5	4	3	2	1
12	Delegate the problem	5	4	3	2	1
13	Drink alcohol rather more than usual	5	4	3	2	1
14	Try to avoid the situation	5	4	3	2	1

Plot total score below:



APPENDIX B

TABLE 3 : COOPER'S WORK STRESS QUESTIONNAIRE

Could you please circle the number that best reflects the degree to which the particular statement is a source of stress for you at work.

		No stress at all		Stress		A great deal of stress	
1	Work overload	0	1	2	3	4	5
2	Work underload	0	1	2	3	4	5
3	Time pressures and deadlines	0	1	2	3	4	5
4	The amount of travel required by my work	0	1	2	3	4	5
5	Long working hours	0	1	2	3	4	5
6	Taking my work home	0	1	2	3	4	5
7	Lack of power and influence	0	1	2	3	4	5
8	Attending meetings	0	1	2	3	4	5
9	My beliefs conflicting with those of the organization	0	1	2	3	4	5
10	Keeping up with new technology	0	1	2	3	4	5
11	Threat of job loss	0	1	2	3	4	5
12	Competition of promotion	0	1	2	3	4	5
13	Having to move with my job in order to progress my career	0	1	2	3	4	5
14	Doing a job beyond the level of my competence	0	1	2	3	4	5
15	Doing a job below the level of my competence	0	1	2	3	4	5

		No stress at all		Stress		A great deal of stress	
16	Inadequately trained subordinates	0	1	2	3	4	5
17	Interpersonal relations	0	1	2	3	4	5
18	Hiring and firing personnel	0	1	2	3	4	5
19	Unsympathetic boss	0	1	2	3	4	5
20	Incompetent boss	0	1	2	3	4	5
21	Performance-related compensation	0	1	2	3	4	5
22	Unrealistic objectives	0	1	2	3	4	5
23	Dealing with conservation groups	0	1	2	3	4	5
24	Dealing with shareholders	0	1	2	3	4	5
25	Dealing with unions	0	1	2	3	4	5
26	My spouse's attitude towards my career	0	1	2	3	4	5
27	Demands of my work on my relationship with my family	0	1	2	3	4	5
28	Demands of work on private and social life	0	1	2	3	4	5
29	My relationship with my colleagues	0	1	2	3	4	5
30	My relationship with my subordinates	0	1	2	3	4	5
31	Making mistakes	0	1	2	3	4	5
32	Feeling undervalued	0	1	2	3	4	5
33	Promotion prospects	0	1	2	3	4	5

		No stress at all		Stress		A great deal of stress	
34	Rate of pay	0	1	2	3	4	5
35	Managing people	0	1	2	3	4	5
36	Office politics	0	1	2	3	4	5
37	Lack of consultation and communication in my organization.	0	1	2	3	4	5

APPENDIX C

THE GENERAL HEALTH QUESTIONNAIRE
(12-ITEM VERSION)

Please read this carefully:

We should like to know if you have had any medical complaints, and how your health has been in general, over the past few weeks. Please answer ALL the questions on the following pages simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about the present and recent complaints, not those that you had in the past.

It is important that you try to answer ALL the questions.

Thank you very much for your co-operation.

HAVE YOU RECENTLY:

1	- been able to concentrate on whatever you're doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2	- lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3	- felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
4	- felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
5	- felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
6	- felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
7	- been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less useful than usual	Much less than usual

8	- been able to face up to your problems?	More so than usual	Same as usual	Less so than usual	Much less able
9	- been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
10	- been losing confidence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
11	- been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
12	- been feeling reasonably happy, all things considered?	More so than usual	About same as usual	Less so than usual	Much less than usual

APPENDIX D

)HINGA OKUMELANA NOKUKHANDLEKA KWENGQONDO NOMZIMBA

IU OKULANDELAYO AMAQHINGA OKUMELANA NOBUNZIMA BOMSEBENZI NOMA UKUKHATHALA)OMDO NOMZIMBA OKUBANGWA WUMSEBENZI OWENZAYO. SICELA UKUBA USITSHELE NGOKUBA :E NOMA UDWEBE INDILINGA NGEPENI LOMSIZI KULEYO NOMBOLO OBONA UKUTHI ICHAZA :CONO IZINGA OWENZA NGALO IQHINGA NGALINYP.

ıu okuhlangene nomqashi wakho. Futhi akudingekile ukuba ulobe igama lakho a inombolo yakho yempesheni. Ngakho-ke ungesabi ukuveza lokho obona ukuthi iqiniso.

ABONGA FUTHI SIYALUTHAKASELA UBAMBISWANO LWAKHO.

ZIPHATHA OKUNENJWAYEZO ANGIKAZE KWENZA NGIKWENZILE	KUTHUKELA NGEZIKHATHI	NGIKWENZA EZITHILE	NGIVAMISILE NJALO	
Ukufuna usizo kanye nezeluleko kwabakuphethe.	1	2	3	4 5
Ukuzama nokubhekana nesimo njengoba sinjalo ngaphandle kokutshengisa imizwa yokuphastheka kabi.	1	2	3	4 5
Ukuzama ukuzibuka wena ukuze ubone lapho uxega khona.	1	2	3	4 5
Ukuxoxisana nozakwenu abanozwelo.	1	2	3	4 5
Ukuhlela izinto ngononina ukuze ukwazi ukuxazulula izinkinga ngokufanelekile.	1	2	3	4 5
Ukwamukela isimo senkinga uhlale naso njengoba sinjalo.	1	2	3	4 5
Ukuzama uthole usizo lokux-haswa ngumphathkathi ukuze kuxazululeke inkinga ekukh-ungethe.	1	2	3	4 5
JZIPHATHA OKUNENJWAYEZO BI	1	2	3	4 5

Ukuhlala umatasatasa	5	4	3	2	1

UZIPHATHA OKUNENJWAYEZO

Ukuvalela inkinga yakho esifubeni kube yimfihlo yakho kuphela	5	4	3	2	1
.Ukwenza eazinye izinto ezizosusa inkinga enqondweni wakho.	5	4	3	2	1
..Ukubhema ugwayi kakhulu	5	4	3	2	1
2.Ukudlulisela inkinga kozakwenu ukuze bayixazulule.	5	4	3	2	1
3.Ukuphuza utshwala ngokweqile	5	4	3	2	1
4.Ukuziba inkinga kube sengathi ayikho.	5	4	3	2	1

APPENDIX E

IMIBUZO KA COOPER YOKUKHANDLEKA KOMQONDO NOMZIMBA OKUBANGWA WUMSEBENZI

LEMISHO ELANDELAYO ICHAZA UMSUKA NONA UMNYOMBO WOKUKHANDLEKA KWENGQONDO NOMZIMBA OKUBANGWA WUMSEBWNZI OWENZAYO. SICELA WENZE NOMA UDWEBE INDILINGA KULEYO NOMBOLO OBONA UKUTHI ICHAZA KANGCONO IZINGA LOKUKHANDLEKA KOMQONDO OKUBANGWA IMISUKA NOMA YIMINYOMBO ECHAZWE YILEMISHO ELANDELAYO.

Lokhu akuhlangene nomqashi wakho. Futhi akudingekile ukuba ulobe igama lakho noma inombolo yakho yempesheni. Ngakho-ke ungesabi ukuveza lokho obona ukuthi kuyiqiniso.

SIYABONGA FUTHI SIYALUTHOKIZELA UBAMBISWANO LWAKHO.

UKUKHANDLEKA KWENGQONDO NOMZIMBA

	AKUKHO	KUKHONA	KUKHONA KAKHULU
Ubuningi bomsebenzi ngokweqile.	0 1	2 3	4 5
Ubuncane bomsebenzi ngokweqile.	0 1	2 3	4 5
Ukuxinwa isikhathi nomsebenzi onqunyelwe isikhathi.	0 1	2 3	4 5
Ubuningi bezindlela engizihambayo ukuze ngifeze izidingo zomsebenzi.	0 1	2 3	4 5
Ukusebenza amahora amaningi.	0 1	2 3	4 5
Ukuthatha umsebenzi ngiyowenza ekhaya.	0 1	2 3	4 5
Ukungabi nawo amandla okuthatha izinqumo nokulalelwa.	0 1	2 3	4 5
Ukuhambela imihlangano.	0 1	2 3	4 5

	AKUKHO	KUKHONA	KUKHONA KAKHULU
Ukungqubuzana kwezinkolelo zami nalezo zenkampani engiyisebenzelayo.	0 1	2 3	4 5
Ukufunda izindlela ezintsha zokusebenza	0 1	2 3	4 5
Ukwesaba izindlela ezintsha zokusebenza.	0 1	2 3	4 5
. Ukuqhudelana kokukhushulwa ezikhundleni.	0 1	2 3	4 5
. Ukushintshwa ukuze ngibe nenqubekela phambili emsebenzini wami.	0 1	2 3	4 5
. Ukwenza umsebenzi osezingeni eliphezu kwamandlamdla ami.	0 1	2 3	4 5
. Ukwenza umsebenzi osezingeni eliphansi kwamandla ami.	0 1	2 3	4 5
. Ukuphatha abasebenzi abangaqeqeshiwe ngokwenele.	0 1	2 3	4 5
. Ukuzwana emsebenzini.	0 1	2 3	4 5
. Ukuqashwa nokuxoshwa emsebenzini.	0 1	2 3	4 5
. Umphathi ongenalo uzwelo.	0 1	2 3	4 5
. Umphathi ongawazi umsebenzi.	0 1	2 3	4 5
. Umholo oncike kulokho esengikukhiqizile.	0 1	2 3	4 5
. Izinjongo ezingenamqondo.	0 1	2 3	4 5

	AKUKHO	KUKHONA	KUKHONA KAKHULU
Ukusebenzelana nabantu abangontamolukhuni.	0 1	2 3	4 5
Ukusebenzelana nabanikazi benkampani.	0 1	2 3	4 5
Ukusebenzelana nezinyunyana.	0 1	2 3	4 5
Indlela umkami abuka ngayo umsebenzi wami.	0 1	2 3	4 5
Ubudlelwano bami nomndeni wami kanye nezidingo zomsebenzi.	0 1	2 3	4 5
Ukugxambukela kwezidingo zomsebenzi empilweni yami engiyiphila emphakathini.	0 1	2 3	4 5
Ubudlelwano bami nabasebenzi engibaphethe.	0 1	2 3	4 5
Ubudlelwano bami nozakwethu.	0 1	2 3	4 5
Ukwenza amaphutha.	0 1	2 3	4 5
Ukuzizwa ngibukelwa phansi.	0 1	2 3	4 5
Amathuba okukhushulelwa ezikhundleni eziphezulu.	0 1	2 3	4 5
Izinga leholo.	0 1	2 3	4 5
Ukuphatha abantu.	0 1	2 3	4 5

	AKUKHO	KUKHONA	KUKHONA KAKHULU
Ipolitiki noma izindaba zehovisi.	0 1	2 3	4 5
Ukungabibikho kokuxhumana enkampanini engiyisebenzelayo.	0 1	2 3	4 5

APPENDIX F

/JM PO3/12

IMIBUZO EQONDENE NEMPILO YAKHO JIKELELE
ISIKALO SEMPILO JIKELELE ESIFISHANE - IMIBUZO INGU 12

Uyacelwa ukuba ufunde lokhu okulandelayo ngokucophelela.

Sicela ukuba usazise ngempilo yakho jikele, njengokuthi nje usuke waba nakho yini ukuphatheka kabi okudinge udokotela emasontweni ambalwa edlule. Uyacelwa ukuba uphendule yonke imibuzo elandelayo ngokuba udwebe ulayini ngaphansi kwaleyo mpendulo obona ukuthi ichaza kangcono impilo yakho. Khumbula ukuthi sifuna ukuphatheka kwempilo yakho njengamanje noma emasontweni ambalwa edlule hhayi okwakudala kakhulu (e.g ngonyaka odlule noma ezinyangeni eziyisithupa ezedlule).

Kubalulekile ukuba uphendule yonke imibuzo.

Siyabonga futhi siyaluthokozela ubambiswano lwakho.

IMIBUZO	IZIMPENDULO			
KAMUVA NJE	1	2	3	4
usuke waba nakho ukugxila komqondo (Concentration) ezintweni ozenzayo.	Kangcono kunokwejwayelekile	Kuyefana kunokwejwayelekile	Kungaphansi kunokwejwayelekile	Kungaphansi kakhulu kinokwejwayelekile
usuke waqwasha ebusuku ngenxa yezinkinga.	Angikaze	Kuthi akufane nokujwayelekile	Kungaphezu kokujwayelekile	Kungaphezu kakhulu kunokwejwalekile
usuke wazizwa ukuthi ubambe iqhaza elinohlonzo ekwenzekeni kwezinto	Kakhulu kunokwejwayelekile	Kuyefana nokujwayelekile	Ngaphansi kunokujwayelekile	Ngaphansi kakhulu kunokujwayelekile

usuke wazizwa unekhono lokuthatha izinqumo eziphathelene nezinto ezithile.	Ngaphezu kokujway-elekile	Kuyefana nokujway-elekile	Ngaphansi kokuway-elekile	Ngaphansi kakhulu kunokujway-elekile
usuke wazizwa unokukhathala.	Angikaze	Kuthi akufane nokujway-elekile	Ngaphezu kokujway-elekile	Ngaphezu kakhulu kunokujway-elekile
usuke wazizwa ungenawo amandla okuxazulula izinkinga.	Angikaze	Kuthi akufane nokujway-elekile	Kuthi akube ngaphezu kokuway-elekile	Kungaphezu kakhulu kunokujway-elekile
usuke wazithokozela izinto ezijwayelekile obuzenza nsukuzonke.	Kakhulu kunokujway-elekile	Kuyefana nokujway-elekile	Ngaphansi kunokujway-elekile	Ngaphansi kakhulu kunokujway-elekile
usuke waba nalo ikhono lokuxazulula izinkinga zakho.	Kakhulu kunokujway-elekile	Kuyefana nokujwa-elekile	Ngaphansi-nje kunok-wejway-elekile	Ngaphansi kakhulu kunokujway-elekile
usuke waba nakho ukungenami nokubhocobala	Angikaze	Kuthi akufane nokujway-elekile	Kuthi akube ngaphezu kokujway-elekile	Ngaphezu kakhulu kunokujway-elekile
0. usukewabanakho ukuhgazethembi.	Angikaze	Kuthi akufane nokujway-elekile	Kuthi akube ngaphezu kokujway-elekile	Ngaphezu kakhulu kunokujway-elekile

usuke wazibuka ungumuntu ongelutho.	Angikaze	Kuthi akufane nokujway-elekile	Kuthi akube ngaphezu kokujway-elekile	Ngaphezu kakhulu kunokujway-elekile
usuke wazizwa uthokoza ngokujwayelekile	Kakhulu kunokujway-elekile	Kuyefana nokujway-elekile	Ngaphansi kunoku-jwayelekile	Ngaphansi kakhulu kunokujway-elekile

APPENDIX G

SKILLS FOR COPING WITH WORK STRESS

The following are skills for coping with work stress. Please indicate by encircling the number which best describes the degree to which you apply each skill.

This has nothing to do with your employer and you do not have to give your name and your pension number. Therefore do not be afraid to say the truth.

Thank you very much for your co-operation.

		NEVER	RARELY	PERIODI-CALLY	REGULARLY	VERY OFTEN
BENEFICIAL BEHAVIOUR PATTERNS						
1	Seek assistance and advice from your supervisors.	1	2	3	4	5
2	Try and face the situation object-ively and without emotions.	1	2	3	4	5
3	Try to examine yourself so as to be aware of your limitations.	1	2	3	4	5
4	Talk to your sympathetic colleagues.	1	2	3	4	5
5	Organise priorities and deal with problems accordingly.	1	2	3	4	5
6	Accept the situation and learn to live with it.	1	2	3	4	5
7	Try and get social support in order to solve your problem.	1	2	3	4	5

		NEVER	RARELY	PERIODI-CALLY	REGULARLY	VERY OFTEN
HARMFUL BEHAVIOUR PATTERNS						
8	Always busy	5	4	3	2	1
9	Keeping problems to yourself.	5	4	3	2	1
10	Do other things to avoid the problem	5	4	3	2	1
11	Excessive smoking	5	4	3	2	1
12	Delegate the problem	5	4	3	2	1
13	Excessive drinking	5	4	3	2	1
14	Try and avoid the situation	5	4	3	2	1

APPENDIX H

COOPER'S WORK STRESS QUESTIONNAIRE

The following sentences describe the sources of stress which are caused by the type of work you do. Please indicate by circling the number which best describes the extent of the stress which is caused by the sources described by the following sentences.

Thank you very much for your co-operation

		STRESS		
		No Stress	Stress	A great deal of stress
1	Work overload	01	23	45
2	Work underload	01	23	45
3	Time pressure and deadlines	01	23	45
4	Amount of time required by my work	02	23	45
5.	Long working hours	01	23	45
6	Taking my work home	01	23	45
7	Lack of power and influence	01	23	45
8	Attending meetings	01	23	45
9	The conflict of my beliefs with those of the organization	01	23	45
10	Keeping up with new technology	01	23	45
11	Fearing of losing your job	01	23	45
12	Competing for promotion	01	23	45

		No Stress	Stress	A great deal of stress
13	Having to cope with many transfers so as to be promoted	01	23	45
14	Doing the job above the level of my competence	01	23	45
15	Doing the job below the level of my competence	01	23	45
16	Supervising untrained staff	01	23	45
17	Interpersonal relations	01	23	45
18	Staff hiring and dismissals	01	23	45
19	Unsympathetic supervisor	01	23	45
20	Incompetent supervisor	01	23	45
21	Production related pay	01	23	45
22	Unclear or unrealistic objectives	01	23	45
23	Working with conservative colleagues	01	23	45
24	Working with shareholders	01	23	45
25	Working with unions	01	23	45
26	My wife's attitude towards my work	01	23	45
27	Work pressure on my family relationship	01	23	45
28	Interference by the work demands on my private and social life	01	23	45

		No Stress	Stress	A great deal of stress
29	My relationship with my colleagues	01	23	45
30	My relationship with my subordinates	01	23	45
31	Making errors	01	23	45
32	Feeling undervalued	01	23	45
33	Opportunities for promotion	01	23	45
34	My rate of pay	01	23	45
35	Managing people	01	23	45
36	Office politics	01	23	45
37	Lack of consultation in my company	01	23	45

APPENDIX I

QUESTIONS PERTAINING TO YOUR GENERAL HEALTH

Short version of the general health questionnaire (12 items).

Please read the following carefully.

We would like you to tell us more about your general health. For instance, have you had any medical complaints which required you to consult a medical doctor in the past two weeks? Please answer all the following questions by underlying the answer which best describes your health. Remember that we are interested in your present and recent state of health rather than that of the past.

It is important to answer all the questions.

Thank you very much for your co-operation.

	QUESTIONS	ANSWERS			
		1	2	3	4
Have you recently					
1	- been able to concentrate on what you are doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2	- lost much sleep over worry?	Not at all	No more than usual	More than usual	Much more than usual
3	- felt that you are playing a major role in things?	More so than usual	Same as usual	Less than usual	Much less than usual
4	- felt able to make decisions about things?	More so than usual	Same as usual	More than usual	Much more than usual

QUESTIONS		ANSWERS			
		1	2	3	4
5	- felt under strain?	Not at all	No more than usual	More than usual	Much more than usual
6	- felt you could not solve your problems?	Not at all	No more than usual	More than usual	Much more than usual
7	- been able to enjoy the usual daily activities?	No more than usual	Same as usual	Less than usual	Much less than usual
8	- been able to face your problems?	More than usual	Same as usual	Less than usual	Much less than usual
9	- been feeling unhappy and depressed?	Not at all	No more than usual	More than usual	Much more than usual
10	- been losing confidence in yourself?	Not at all	No more than usual	More than usual	Much more than usual
11	- been thinking of yourself as a worthless person?	Not at all	No more than usual	More than usual	Much more than usual
12	- been feeling reasonably happy all things equal?	More so than usual	About same as usual	Less so than usual	Much less than usual

APPENDIX J

WORKERS

	Coopers Work Stress Questionnaire	Coping with Stress Questionnaire		General Health Questionnaire
	A	B Adaptive	C Maladaptive	D
1	122	22	20	3
2	117	18	27	8
3	105	21	22	5
4	104	17	18	5
5	114	21	19	5
6	108	18	21	6
7	116	22	18	8
8	115	20	22	7
9	123	18	20	4
10	110	21	22	6
11	109	22	18	3
12	107	22	18	4
13	115	22	18	4
14	107	22	18	4
15	107	22	18	4
16	105	22	18	4
17	105	22	18	4
18	98	22	18	3
19	117	19	21	6
20	111	22	20	5
21	105	15	19	6
22	112	19	24	6
23	100	20	22	3
24	109	21	21	7
25	102	19	19	5
26	122	23	18	5
27	141	24	23	7
28	133	21	25	9
29	127	26	24	10
30	121	22	25	6
31	120	23	21	3
32	112	17	16	5
33	120	23	17	5
34	102	19	18	5
35	112	22	23	7
36	117	15	27	7
37	106	17	23	5

	A	B	C	D
38	123	31	24	8
39	109	22	18	7
40	107	23	18	8
41	102	20	18	6
42	98	16	24	6
43	104	19	20	5
44	108	21	23	8
45	107	17	21	8
46	105	22	18	4
47	107	22	18	4
48	107	22	18	4
49	108	22	18	4
50	105	21	18	4
51	108	15	24	7
52	116	21	18	6
53	114	20	17	5
54	109	19	20	4
55	132	22	17	5
56	108	19	19	6
57	104	19	23	4
58	114	25	17	10
59	120	20	24	7
60	122	22	18	4
61	121	20	22	7
62	101	19	23	4
63	105	28	21	7
64	105	17	25	6
65	123	18	24	8
66	113	27	20	5
67	114	15	20	7
68	113	19	18	8
69	116	19	22	8
70	106	23	20	10
71	117	27	22	5
72	115	22	19	5
73	124	26	21	8
74	88	19	22	5
75	130	20	20	7
	8404	1560	1531	433
Mean=X=	$\frac{x}{N}$	$\frac{1560}{75}$	$\frac{1531}{75}$	$\frac{433}{75}$
	$\frac{8404}{75}$			
	112,05	20,8	20,4	5,77
	112,1	21	20	5,8

APPENDIX K

MIDDLE MANAGERS

	Coopers Work Stress Questionnaire	Coping with Stress Questionnaire		General Health Questionnaire
	A	B Adaptive	C Maladaptive	D
1	86	27	26	2
2	19	17	30	5
3	34	22	19	0
4	11	21	21	8
5	92	22	16	4
6	88	26	27	0
7	104	24	21	0
8	8	23	29	3
9	87	27	24	0
10	68	23	28	0
11	54	24	33	0
12	56	3	3	0
13	84	26	27	5
14	66	23	28	0
15	68	23	28	0
16	60	27	26	0
17	73	24	27	0
18	53	26	28	1
19	130	23	17	1
20	40	28	24	0
21	41	28	24	0
22	44	31	21	0
23	29	21	24	0
24	39	10	33	0
25	110	23	24	0
26	99	27	22	3
27	57	23	12	2
28	84	25	23	1
29	102	25	27	2
30	94	25	25	1
31	45	27	29	0
32	52	22	27	1
33	126	20	21	2
34	93	24	24	0
35	120	21	24	0
36	35	22	28	0

	A	B	C	D
37	79	25	24	0
38	86	20	23	1
39	48	24	22	0
40	97	23	22	7
41	103	21	19	2
42	110	19	18	5
43	81	27	14	7
44	95	22	27	1
45	64	25	30	3
46	57	23	25	0
47	67	18	23	0
48	81	27	16	0
49	74	21	22	0
50	58	20	26	3
51	57	26	30	0
52	107	24	21	4
53	76	27	28	0
54	72	25	24	0
55	56	26	24	0
56	78	25	20	1
57	27	30	22	0
58	94	28	20	7
59	60	20	23	0
60	28	22	28	0
61	111	28	24	1
62	53	25	24	0
63	53	23	21	2
64	59	18	22	1
65	102	27	21	1
66	96	24	25	12
67	102	33	28	4
68	95	23	15	6
69	66	23	25	0
70	76	17	26	5
71	69	21	27	0
72	72	25	14	4
73	70	30	24	0
74	87	21	28	3
75	23	24	27	0
	5340	1763	1752	122
Mean=X = $\frac{x}{N}$ =		$\frac{1763}{75}$	$\frac{1752}{75}$	$\frac{122}{75}$
= $\frac{5340}{75}$				
= 71,2		23,5	23,3	1,6
= $\underline{71}$		$\underline{24}$	$\underline{23}$	$\underline{2}$

APPENDIX L

The following numerical work is concerned with the nature of relationship between two variables. These are: levels of perceived stress and perceived general health of the workers and the middle managers. In accordance with common practice in statistical computations letter x will represent levels of perceived stress and y will denote perceived general health.

Since the data is in the interval scale, Siegel (1956) suggests that the Pearson Product - moment be computed in order to determine the nature of the relationship between these two variables.

A WORKERS

	X	Y	X^2	Y^2	XY
1	122	3	14884	9	366
2	117	8	13689	64	936
3	105	5	11025	25	525
4	104	5	10816	25	520
5	114	5	12996	25	570
6	108	6	11664	36	648
7	116	8	13456	64	928
8	115	7	13225	49	805
9	123	4	15129	16	492
10	110	6	12100	36	660
11	109	3	11881	9	327
12	107	4	11449	16	428
13	115	4	13225	16	460
14	107	4	11449	16	428
15	107	4	11449	16	428
16	105	4	11025	16	420
17	105	4	11025	16	420
18	98	3	9604	9	294
19	117	6	13689	36	702
20	111	5	12321	25	555
21	105	6	11025	36	630
22	112	6	12544	36	672
23	100	3	10000	9	300
24	109	7	11881	49	763
25	102	5	10404	25	510
26	122	5	14884	25	610
27	141	7	19881	49	987
28	133	9	17689	81	1197
29	127	10	16129	100	1270
30	121	6	14641	36	726
31	120	3	14400	9	360
32	112	5	12544	25	560
33	120	5	14400	25	600
34	102	5	10404	25	510

35	112	7	12544	49	784
36	117	7	13689	49	819
37	106	5	11236	25	530
38	123	8	15129	64	984
39	109	7	11881	49	763
40	107	8	11449	64	856
41	102	6	10404	36	612
42	98	6	9604	36	588
43	104	5	10816	25	520
44	108	8	11664	64	864
45	107	8	11449	64	856
46	105	4	11025	16	420
47	107	4	11449	16	428
48	107	4	11449	16	428
49	108	4	11664	16	432
50	105	4	11025	16	420
51	108	7	11664	49	756
52	116	6	13456	36	696
53	114	5	12996	25	570
54	109	4	11881	16	436
55	132	5	17424	25	660
56	108	6	11664	36	648
57	104	4	10816	16	416
58	114	10	12996	100	1140
59	120	7	14400	49	840
60	122	4	14884	16	488
61	121	7	14641	49	847
62	101	4	10201	16	404
63	105	7	11025	49	735
64	105	6	11025	36	630
65	123	8	15129	64	984
66	113	5	12769	25	565
67	114	7	12996	49	798
68	113	8	12769	64	904
69	116	8	13456	64	928
70	106	10	11236	100	1060
71	117	5	13689	25	585
72	115	5	13225	25	575
73	124	8	15376	64	992
74	88	5	7744	25	440
75	130	7	16900	49	910
	Σ8404	Σy432	Σx²637992	Σy2731	Σxy48918

Computation

$$r = \frac{\Sigma xy - \frac{(\Sigma x)(\Sigma y)}{N}}{\sqrt{\left[\Sigma x^2 - \frac{(\Sigma x)^2}{N}\right]\left[\Sigma y^2 - \frac{(\Sigma y)^2}{N}\right]}}$$

$$r = \frac{48918 - \frac{(8404)(433)}{75}}{\sqrt{\left[637992 - \frac{(8404)^2}{75}\right]\left[2731 - \frac{(433)^2}{75}\right]}}$$

$$r = \frac{48918 - \frac{3638932}{75}}{\sqrt{\left[637992 - \frac{70694464}{75}\right]\left[2731 - \frac{187489}{75}\right]}}$$

$$r = \frac{48918 - 48519{,}1}{\sqrt{[637992 - 942592{,}9]\ [2731 - 2499{,}9]}}$$

$$r = \frac{399}{\sqrt{[304601]\ [231]}}$$

$$r = \frac{399}{\sqrt{\ [7036260\ ]}}$$

$$r = \frac{399}{2652{,}6}$$

$$\xrightarrow{\quad r = 0{,}15 \quad}$$

APPENDIX M

B MIDDLE MANAGERS

	X	Y	X^2	Y^2	XY
1	86	2	7396	4	172
2	19	5	361	25	95
3	34	0	1156	0	0
4	11	8	121	64	88
5	92	4	8464	16	368
6	88	0	744	0	0
7	104	0	10816	0	0
8	8	3	64	9	24
9	87	0	7569	0	0
10	68	0	4625	0	0
11	54	0	2916	0	0
12	56	0	3136	0	0
13	84	5	7056	25	420
14	66	0	4356	0	0
15	68	0	4624	0	0
16	60	0	3600	0	0
17	73	0	5329	0	0
18	53	1	2809	1	53
19	130	1	16900	1	130
20	40	0	1600	0	0
21	41	0	1681	0	0
22	44	0	1936	0	0
23	29	0	841	0	0
24	39	0	521	0	0
25	110	0	12100	0	0
26	99	3	9801	9	297
27	57	2	3249	4	114
28	84	1	7056	1	84
29	102	2	10404	4	204
30	94	1	8836	1	94
31	45	0	2025	0	0
32	52	1	2704	1	52
33	126	2	15874	4	252
34	93	0	8649	0	0
35	120	0	14400	0	0
36	35	0	1225	0	0
37	79	0	6241	0	0
38	86	1	7396	1	86
39	48	0	2304	0	0
40	97	7	9409	49	679

41	103	2	10609	4	206
42	110	5	12100	25	550
43	81	7	6561	49	567
44	95	1	9025	1	95
45	64	3	4096	9	192
46	57	0	3249	0	0
47	67	1	4489	1	67
48	81	0	6561	0	81
49	74	0	5474	0	74
50	58	3	3364	9	174
51	57	0	3249	0	0
52	107	4	11449	16	428
53	76	0	5776	0	0
54	72	0	5184	0	0
55	56	0	3136	0	0
56	78	1	6084	1	78
57	27	0	729	0	0
58	94	7	8836	49	658
59	60	0	3600	0	0
60	28	0	784	0	0
61	111	1	12321	1	111
62	53	0	2809	0	0
63	53	2	2809	4	106
64	59	1	3481	1	59
65	102	1	10404	1	102
66	96	12	9216	144	1152
67	102	4	10404	16	408
68	95	6	9025	36	570
69	66	0	4356	0	0
70	76	5	5776	25	380
71	69	0	4761	0	0
72	72	4	5184	16	288
73	70	0	4900	0	0
74	87	3	7569	9	261
75	23	0	529	0	0
	Σ5340	ΣY122	$\Sigma X^2$436191	$\Sigma Y^2$636	ΣXY9819

Means $X = \frac{\Sigma X}{N}$

$X = \frac{5340}{75}$ $\quad \frac{122}{75}$ $\quad \frac{436191}{75}$ $\quad \frac{636}{75}$ $\quad \frac{8919}{75}$

$= \underline{71,2}$ $\quad = \underline{1,63}$ $\quad = \underline{5815,89}$ $\quad = \underline{8,5}$ $\quad = \underline{118,92}$

Computation

$$r = \frac{\Sigma xy - \frac{(\Sigma x)\ (\Sigma y)}{N}}{\sqrt{\left[\Sigma x^2 - \frac{(\Sigma x)^2}{N}\right]\left[\Sigma y^2 - \frac{(\Sigma y)^2}{N}\right]}}$$

$$r = \frac{9819 - \frac{(5340)(122)}{75}}{\sqrt{\left[436191 - \frac{(5340)^2}{75}\right]\left[636 - \frac{(122)^2}{75}\right]}}$$

$$r = \frac{9819 - 8686{,}4}{\sqrt{[436191 - 380208\ ]\ [636 - 198{,}5]}}$$

$$r = \frac{1131{,}6}{\sqrt{244925625}}$$

$$r = \frac{1131{,}6}{4948{,}9}$$

$$r = 0{,}23 \rightarrow$$

APPENDIX N

In the following numerical work the variable of effective coping skills will be represented by letter X and Y will denote perceived general health.

A WORKERS

	X	Y	X^2	Y^2	XY
1	22	3	484	9	66
2	18	8	324	64	144
3	21	5	441	25	105
4	17	5	289	25	85
5	21	5	441	25	105
6	18	6	324	36	108
7	22	8	484	64	176
8	20	7	400	49	140
9	18	4	324	16	72
10	21	6	441	36	126
11	22	3	484	9	66
12	22	4	484	16	88
13	22	4	484	16	88
14	22	4	484	16	88
15	22	4	484	16	88
16	22	4	484	16	88
17	22	4	484	16	88
18	22	3	484	9	66
19	19	6	361	36	114
20	22	5	484	25	110
21	15	6	225	36	90
22	19	6	361	36	114
23	20	3	400	9	60
24	21	7	441	49	147
25	19	5	361	25	95
26	23	5	529	25	115
27	24	7	576	49	168
28	21	9	441	81	189
29	26	10	676	100	260
30	22	6	484	36	132
31	23	3	529	9	69
32	17	5	289	25	85
33	23	5	529	25	115
34	19	5	361	25	95
35	22	7	484	49	154
36	15	7	225	49	105

37	17	5	289	25	85
38	31	8	961	64	248
39	22	7	484	49	154
40	23	8	529	64	184
41	20	6	400	36	120
42	16	16	256	36	96
43	19	5	361	25	95
44	23	8	529	64	184
45	17	8	289	64	136
46	22	4	484	16	88
47	22	4	484	16	88
48	22	4	484	16	88
49	22	4	484	16	88
50	21	4	484	16	88
51	21	4	441	16	84
52	21	6	441	36	126
53	20	5	400	25	100
54	19	4	361	16	76
55	17	5	289	25	85
56	19	6	361	36	114
57	19	4	361	16	76
58	25	10	625	100	250
59	20	7	400	49	140
60	22	4	484	16	88
61	20	7	400	49	140
62	19	4	361	16	76
63	28	7	784	49	196
64	17	6	289	36	102
65	18	8	324	64	144
66	27	5	729	25	135
67	15	17	225	49	105
68	19	8	361	64	152
69	19	8	361	64	152
70	23	10	529	100	230
71	27	5	729	25	135
72	22	5	484	25	110
73	26	8	676	64	208
74	19	5	729	36	162

ΣX 1564	ΣY 448	ΣX^2 30219	ΣY^2 2718	ΣXY 9044

Means $X = \frac{\Sigma X}{N}$

$= \frac{1564}{75}$	$\frac{448}{75}$	$\frac{30219}{75}$	$\frac{2718}{75}$	$\frac{9044}{75}$
$= \underline{2085}$	$\underline{5,97}$	$\underline{402,92}$	$\underline{36,24}$	$\underline{120,6}$

$$r = \frac{\Sigma xy - \frac{(\Sigma x)\ (\Sigma y)}{N}}{\sqrt{\left[\Sigma x^2 - \frac{(\Sigma x)^2}{N}\right]\left[\Sigma y^2 - \frac{(\Sigma y)^2}{N}\right]}}$$

$$r = \frac{9044 - \frac{(1564)(452)}{75}}{\sqrt{\left[30219 - \frac{(1564)^2}{75}\right]\left[2718 - \frac{(448)^2}{75}\right]}}$$

$$r = \frac{9044 - 9425{,}71}{\sqrt{[30219 - 32614{,}61]\ [2718 - 2676{,}1]}}$$

$$r = \frac{-381{,}71}{\sqrt{-2395{,}61 \times 41{,}9}}$$

$$r = \frac{-381{,}71}{\sqrt{-100376{,}1}}$$

$$r = \frac{-381{,}71}{316{,}8}$$

$$r = 1{,}2$$

APPENDIX O

B MIDDLE MANAGERS

	X	Y	X^2	Y^2	XY
1	27	2	729	4	54
2	17	5	289	25	85
3	22	0	484	0	0
4	21	8	441	64	168
5	22	4	484	16	88
6	26	0	676	0	0
7	24	0	576	0	0
8	23	3	529	9	69
9	27	0	729	0	0
10	23	0	529	0	0
11	24	0	576	0	0
12	3	0	9	0	0
13	26	5	676	25	130
14	23	0	529	0	0
15	23	0	529	0	0
16	27	0	729	0	0
17	24	0	576	0	0
18	26	1	676	1	26
19	23	1	529	1	23
20	28	0	784	0	0
21	28	0	784	0	0
22	31	0	961	0	0
23	21	0	441	0	0
24	10	0	100	0	0
25	23	0	529	0	0
26	27	3	729	9	81
27	23	2	529	4	46
28	25	5	625	1	25
29	25	2	625	4	50
30	25	1	625	1	25
31	27	0	729	0	0
32	22	1	484	1	22
33	20	2	400	4	40
34	24	0	576	0	0
35	21	0	441	0	0
36	22	0	484	0	0
37	25	0	625	0	0
38	20	1	400	1	20
39	24	0	576	0	0
40	23	7	529	49	161

41	21	2	441	4	42
42	19	5	361	25	95
43	27	7	729	49	181
44	22	1	484	1	22
45	25	3	625	9	75
46	23	0	529	0	0
47	18	1	324	1	18
48	27	0	729	0	0
49	21	0	441	0	0
50	20	3	400	9	60
51	26	0	676	0	0
52	24	4	576	16	96
53	27	0	729	0	0
54	25	0	625	0	0
55	26	0	676	0	0
56	25	1	625	1	25
57	30	0	900	0	0
58	28	7	784	49	196
59	20	0	400	0	0
60	22	0	484	0	0
61	28	1	784	1	28
62	25	0	625	0	0
63	23	2	529	4	46
64	18	1	324	1	18
65	27	1	729	1	27
66	24	12	576	144	288
67	28	4	784	16	112
68	23	6	529	36	138
69	23	0	529	0	0
70	17	5	289	25	85
71	21	0	441	0	0
72	25	4	625	16	100
73	30	0	900	0	0
74	21	3	441	9	63
75	24	0	576	0	0
ΣX 1758		ΣY 122	ΣX^2 42490	ΣY^2 601	ΣXY 2338

Means=

$\Sigma X = \frac{1758}{N}$ $\Sigma Y = \frac{122}{75}$ $\Sigma X^2 = \frac{42490}{75}$ $\Sigma Y^2 = \frac{601}{75}$ $\Sigma XY = \frac{2338}{75}$

$= \frac{1758}{}$ $= 1,63$ $= 566,5$ $= 31,75$

$= \frac{23,44}{}$ $= \frac{1,63}{}$ $= \frac{566,5}{}$ $= \frac{8,01}{}$ $= \frac{31,17}{}$

$$r = \frac{\Sigma xy - \frac{(\Sigma x)\ (\Sigma y)}{N}}{\sqrt{\left[\Sigma x^2 - \frac{(\Sigma x)^2}{N}\right]\left[\Sigma y^2 - \frac{(\Sigma y)^2}{N}\right]}}$$

$$r = \frac{2338 - \frac{(1758)(122)}{75}}{\sqrt{\left[42490 - \frac{(1758)^2}{75}\right]\left[601 - \frac{(122)^2}{75}\right]}}$$

$$r = \frac{2338 - 2859{,}68}{\sqrt{[42490 - 41207{,}52]\ [601 - 198{,}45]}}$$

$$r = \frac{-521{,}68}{\sqrt{1282{,}48 \times 402{,}55}}$$

$$r = \frac{-521{,}68}{\sqrt{516262{,}324}}$$

$$r = \frac{-521{,}68}{718{,}51}$$

$$r = 0{,}73 \rightarrow$$

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